APRIL, 1957

Industrial FINISHING

Published Monthly by PRACTICAL PUBLICATIONS, Inc., 1142 North Meridian Street, Indianapolis 4, Indiana

a safe sign to follow . . .

Reliance manufactures "tailor-made" Stains, Fillers, Lacquers, Varnishes, Primers, Undercoats, Enamels and Special Coatings for every known surface. They may be applied by spraying, dipping, flowing, roller coating — air dried or baked. May we have the pleasure of serving you?

RELIANCE VARNISH COMPANY Incorporated

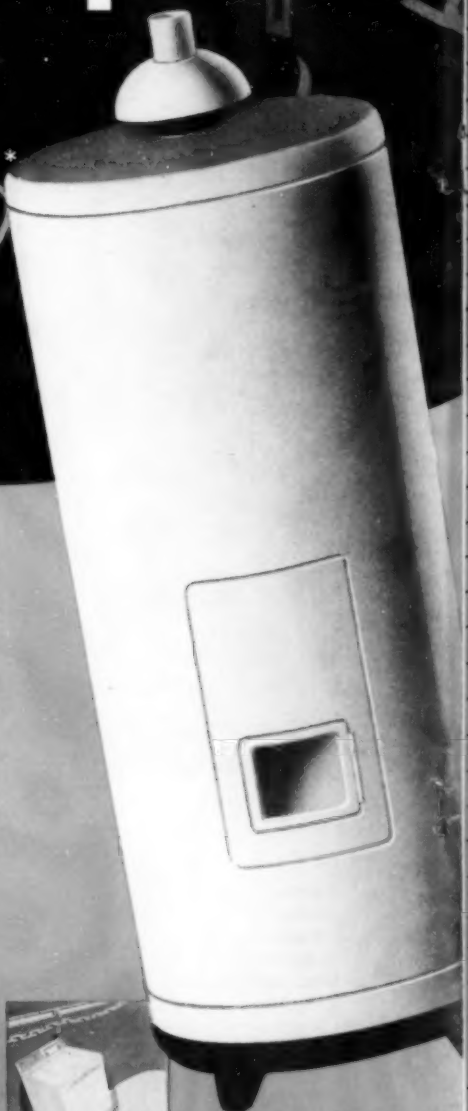
ENGINEERED
Chemical Coatings

Affiliated Factories in LOUISVILLE, KY. • NORTH CHICAGO, ILL. • BRIDGEPORT, CONN. • LOS ANGELES, CALIF. • HIGH POINT, N. C.

Flowcoat Topcoats

Proven in production runs by major manufacturers with

IC Ultraflo* ENAMELS



When IC Ultraflo Enamels were announced last fall, many found it difficult to believe that you could flowcoat topcoats on objects with large surface areas and long lines of flow. Aggressive manufacturers demanded proof with the result that today IC Ultraflo Enamels are constantly chalking up new triumphs in production runs, even under extremely adverse plant conditions.

You'll be amazed at the beautiful flow, high gloss, freedom from sags, runs or pinholes, and minimum supplemental spray needed. You'll get higher production speeds with a practically automatic operation and substantial savings in materials.

Interchemical
CORPORATION
Finishes Division

Headquarters Office: 224 McWhorter Street, Newark 5, N.J.

Factories: Chicago, Ill. • Cincinnati, Ohio • Elizabeth, N.J. Los Angeles, Cal. • Newark, N.J. • Mexico City, Mex. In Canada this product is made by Aulcraft Paints Limited, Toronto, Ontario and sold under its trademark. *IC and Ultraflo are trademarks of Interchemical Corporation.*

Contact your nearest IC Finishes Specialist today, or send for your copy of the brochure, "IC Ultraflo Primers and Enamels."

A superb French High Renaissance design of the late 16th Century. Fine furniture and fine finishes have been prized down through the ages.

For the finest in finishes . . . use ketone solvent systems

Solvent systems based on ketones produce superior finishes, at no increase in production cost and in almost any formulation.

Important, too—ketones yield solutions of higher solids, or permit greater diluent content with either aromatic or aliphatic solvents.

Still another advantage—ketone-based solvent systems assure complete flexibility in formulating. When you buy Shell high-purity solvents, *you* add the latent solvents *you* prefer.

The Shell Chemical "Quality Group" of active solvents includes Acetone, MEK, MIBK, EAK, and DAA, as well as latent solvents MIBC, IPA and Industrial Ethyl Alcohols. Your Shell Chemical representative will gladly discuss with you the advantages of ketones in your own lacquer formulations.

SHELL CHEMICAL CORPORATION

CHEMICAL SALES DIVISION, 380 Madison Avenue, New York 17, New York

Atlanta • Boston • Chicago • Cleveland • Detroit • Houston • Los Angeles • Newark • New York • San Francisco • St. Louis
IN CANADA: Chemical Division, Shell Oil Company of Canada, Limited • Montreal • Toronto • Vancouver

SHELL

Meet the men behind the gun!

Dan J. Buckle

DIRECTOR OF STYLING STUDIO

Saleability is born in the studio

The challenge of enhancing the saleability of a manufactured product through the originality and beauty of its finish, begins in our styling studio. Here, under the sensitive direction of Dan Buckle, work the men who are a rare combination of artist and technician.

Whatever the product, their job is to give it a special value through infinite combinations of color, clarity or embellishment that make it more desirable on the retail floor than a competitive product.

GRAND RAPIDS VARNISH CORPORATION

GRAND RAPIDS VARNISH CORPORATION, Grand Rapids, Michigan

GRAND RAPIDS VARNISH CORPORATION OF NORTH CAROLINA, High Point, N. C.

Makers of the Famous Guardsman® *Finish and* Guardsman® *Cleaning Polish.*
Studios in Grand Rapids, High Point, and Hickory

THE BETTER THE FINISH, THE BETTER THE BUY

April, 1957
Vol. XXXIII, No. 6

BPA

A monthly magazine for company executives, production superintendents, process engineers, chemists, purchasing agents, paint shop and finishing department foremen of industrial plants where product surface cleaning and painting are major operations in the manufacture of parts and products of all kinds.

Industrial FINISHING

W. H. ROHR, Editor P. C. BARDIN, Associate Editor

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33 THIRTY-THIRD YEAR OF PUBLICATION

Random Comment

Background Work Music has been named an answer to a $3,000,000,000 problem plaguing American industry.

The expensive item, according to Joseph W. Roberts, marketing vice president, Muzak Corp., is **worker tension.** It costs industry $3 billion per year in wasted wages, damage to men and their machines, he declares. "Channelling worker tensions into constructive outlets is one of industry's major human relations problems," Roberts stated.

To combat worker tensions Roberts urged industry to use "music's incomparable power to influence men." He suggested increased use of both recreational, after-work music in which employees can participate and "let off steam", and on-the-job background work music specially programmed for the jobs being done and the time of day. Muzak, he pointed out, has pioneered the scientific development of background work music.

* * *

New Adhesives for Laminating. Production-line techniques are now possible in more and more industrial laminating operations, thanks to the latest developments in the field of chemical bonding. The use of new contact adhesives (odorless, non-staining) featuring easy sprayability, fast-drying and high early strength eliminates the need for clamps, presses, complicated heat-curing schedules and procedures which retard production.

Typical of such adhesives is Hybond "56", recently introduced by Pierce & Stevens Chemical Corp. This is a fast-setting, solvent-type, synthetic rubber compound designed for industrial bonding operations on high-speed production schedules. It is suitable for most types of dissimilar lamination involving steel, aluminum, plastic laminates (Formica, Textolite, etc.) fibreboards, leathers, wood, fabric, rubber, and honeycomb.

An interesting way to show your product.

Rich-Wall (vinyl plastic). The new scrubbable Rich-Wall, a soft and flexible plastic wall covering, is made to stand hard service. It was created for hotel, hospital, apartment house and office applications by the manufacturer, from Monsanto Chemical

DOLAN'S multicolor finish!

SPEX *multicolor*

ONE COAT FINISH

For economy, beauty and durability, use Dolan's SPEX. Spray a combination of two or more distinct contrasting or harmonizing colors in one coat with standard spray equipment. Will hide all surface irregularities and is suitable for finishing wood, metal, plastic, brick, concrete and all types of composition board. Dries like lacquer—good coverage—excellent resistance to water—acids—abrasives—chemicals and marring. Available in a great number of attractive stock colors. Color card supplied upon request.

Licensed under U. S. Patent No. 2,591,904

V. J. DOLAN & COMPANY, Inc.

Manufacturers of "Unquestionable Quality"

INDUSTRIAL FINISHES

1830 N. Laramie Ave. Berkshire 7-0100 Chicago 39

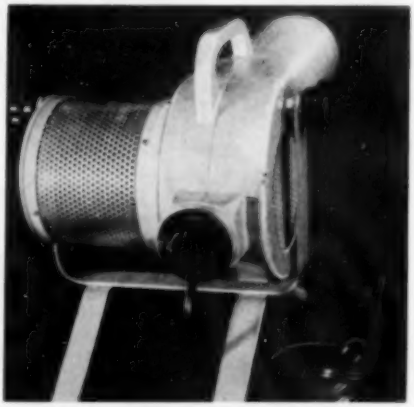
T-415 RECOMMENDED FOR:
Epon and epon modified coatings
Scotchlite and 3M tapes
Eastman-Kodak photo resist
Electro Cold Stripper
NO HEAT—NO CURRENT
Clean your carrying racks, baskets, hooks. Reclaim reject parts with minimum time and expenditure.
NON-TOXIC NON-FLAMMABLE
Order testing sample gratis, 5-gallon at drum price or forward work parts (with requisites) for complete advised work-up. Technical service available.
Alkyd enamels, high bake or air dry, japans, wrinkles, hammers—all remove quickly when immersed in ELECTRO COLD STRIPPER.
Particularly suited for in-line conveyorized stripping as well as batch type operations.
Recommended by leading Industrial and Governmental agencies.
ALLIED FINISHING SPECIALTIES CO.
PHONE: AR 6-2222
2641 W. GRAND AVENUE, CHICAGO 12, ILL.

Company's specially developed Ultron vinyl plastic. Backed with resin treated cotton fibers, which are laminated under heat and pressure to prevent shrinkage, Rich-Wall is applied with treated wallpaper paste.

It comes in ten stylish patterns and 69 color combinations to inspire smart backgrounds for bright color accents. Outstanding in the group are Ceylon, Golden Net, Lancaster and Random, all of which have a subtle touch of gold which adds to the distinction of the patterns.

* * *

Portable "Jet Blower." The continuous or intermittent blast of air required for so many industrial purposes is provided by a new lightweight machine called the Ullman Jet Blower. Designed and built to exacting standards by a maker with

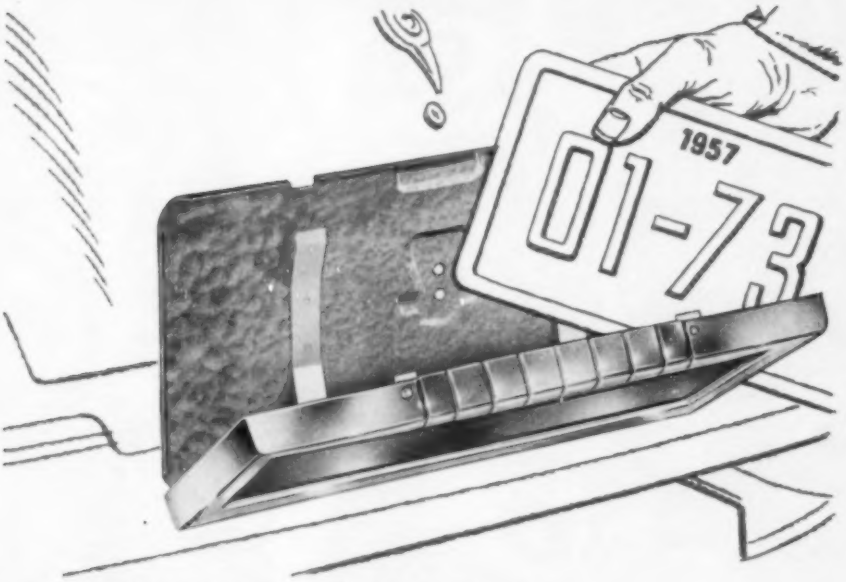


For accelerated drying or cooling anywhere.

20 years experience, the Jet Blower features 3-way heat control—hot, cool and warm.

Two models are available, both of which are portable and compact . . . . Both models feature a ball bearing brushless type motor that is self-

(Continued on page 148)



Exposed to weather, dirt, fumes—

Central Shelltone stands up on license-plate cover

Durable, glistening *Shelltone*, a "hammered" finish made with ALCOA® Aluminum pigment is making industrial finishing history on the back panels of *U.S. Pioneer* automobile license frames. Manufactured by Central Paint & Varnish Works, Inc., Brooklyn, N. Y., Shelltone in this application has passed the acid test . . . to say nothing of dirt, smoke, fumes and all kinds of weather.

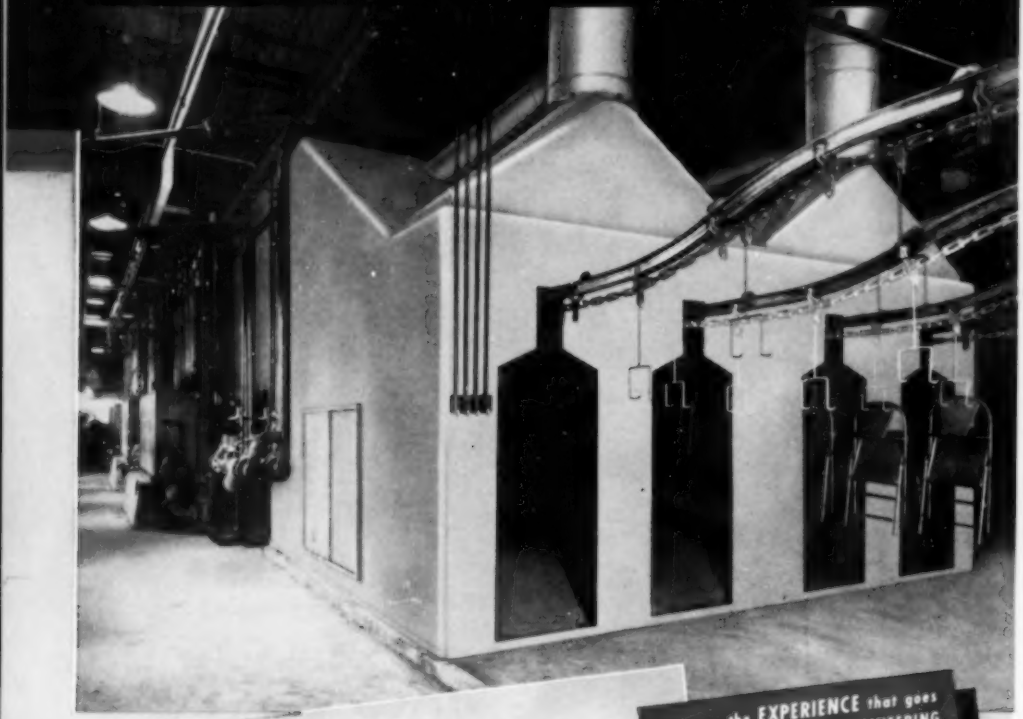
Mr. S. H. Lapidus of U.S. Metal Products Co., Inc. (the manufacturer), wrote recently, "Shelltone has given our product appeal—reflected in our increased sales . . . has practically eliminated factory rejects . . . easy to apply, always consistent in pattern . . . we get what we want with one-coat application."

ALCOA does not make paint, but paint manufacturers, working with ALCOA Aluminum Pigments, have developed a wide range of metallic finishes that are adding extra protection, building big sales for a variety of products. These finishes cost no more than ordinary coatings, and save money on surface preparation as well.

Get all the facts from your paint manufacturer, or write ALUMINUM COMPANY OF AMERICA, PAINT SERVICE BUREAU, 1732-D Alcoa Building, Pittsburgh 19, Pa.

PIGMENTED WITH
ALCOA
ALUMINUM
ALUMINUM COMPANY OF AMERICA
*ALCOA

COMPLET



. . . the **EXPERIENCE** that goes into the **PLANNING** and **ENGINEERING** of **MAHON EQUIPMENT** is the item of **GREATEST VALUE** to **YOU!**

Illustrated on these pages is a Complete Mahon Finishing System installed recently in the Durham Manufacturing Company's Plant in Muncie, Indiana. Above is the Four-Production-Line Metal Cleaning and Surface Preparation Machine. At left is the Ramp-Tunnel up to the Finish Baking Oven Located on the Roof. Both Ramp-Tunnel and Finish Baking Oven are designed to Accommodate Four Parallel Conveyor Lines.

M

E Finishing SYSTEMS

. . . for ENAMELS • LACQUER • PAINT • VARNISH

One of the Four Separate Painting Units in this System. Each of the Four Production Lines Passes through Identical Equipment —Two Electro-Spray Enclosures and a Touch-up Spray Booth.

One of the Eight Mahon Ventilated, Circular Electro-Spray Enclosures Employed in the Four Separate Painting Units in this System. Note Provisions for Control of Air Movement.

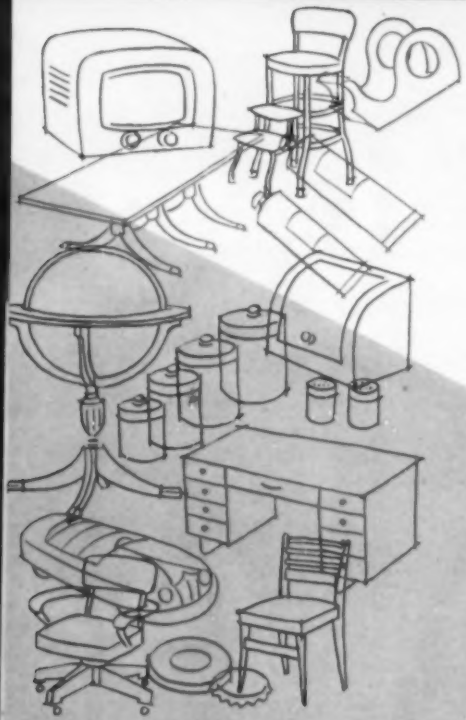
NEW, Complete MAHON FINISHING SYSTEM Provides FLEXIBILITY and ADDS Greatly Increased PEAK PRODUCTION CAPACITY!

A new and highly efficient Mahon Finishing System at Durham Manufacturing Corporation, Muncie, Indiana, gives management needed flexibility and greatly increased maximum painting production capacity. Four parallel painting production lines pass through the entire system. The Metal Cleaning and Surface Preparation Equipment, Dry-off Oven, Cooling Tunnel and Finish Baking Oven are designed to accommodate four parallel conveyor lines. Each of the four conveyor production lines passes through one of four separate painting arrangements—each of which includes two circular Electro-Spray Enclosures and a touch-up Spray Booth. The entire System is designed so that two of the painting production lines can be shut down—the processing equipment is divided for this purpose. An ultramodern Finishing System of this type provides a manufacturer like Durham with painting equipment that meets peak production demands and also permits operation at 50% capacity with the same efficiency and economy. If you are contemplating new finishing equipment, you, too, will want to discuss methods, equipment requirements and possible production layouts with Mahon engineers . . . you'll find them better qualified to advise you, and better qualified to do the all-important planning, engineering and coordinating of equipment. See Sweet's Plant Engineering File for information, or write for Catalog A-657.

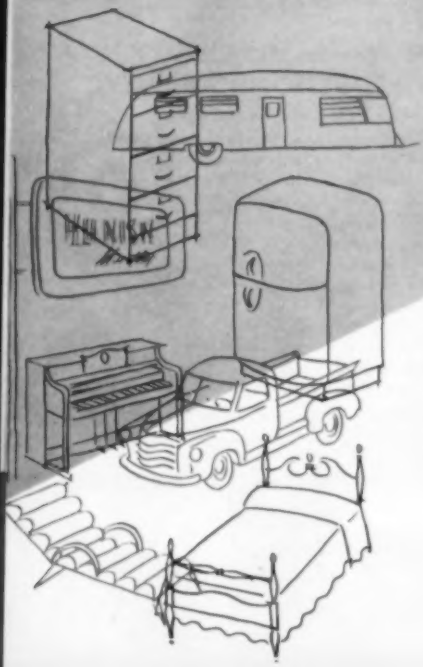
THE R. C. MAHON COMPANY, Detroit 34, Michigan • Branch Offices in New York and Chicago

Engineers and Manufacturers of Metal Cleaning and Pickling Equipment, Metal Cleaning and Rust Proofing Equipment, Spray Booths, Flow Coaters and Dip Coaters, Drying and Baking Ovens, and Complete Conveyorized Finishing Systems.

AHON



WHATEVER YOU MANUFACTURE–



if it's a painted product— LILLY can supply the finish..."tailor-made" to suit the job.

Development and production of Industrial Product Finishes for specific use is an important part of LILLY technical services designed to help manufacturers in the finishing field.

Look to Lilly

as a dependable source

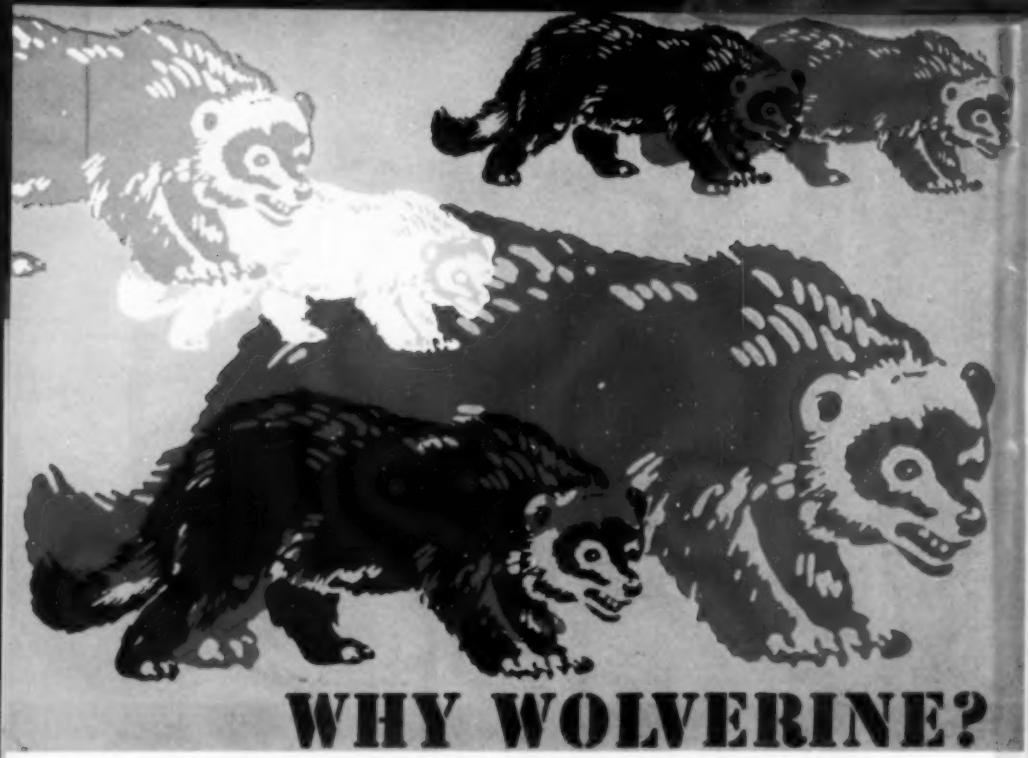
for High Quality

INDUSTRIAL PRODUCT FINISHES

Serving Industry Since 1865

LILLY VARNISH COMPANY · Indianapolis, Indiana

AFFILIATED PLANTS / LILLY VARNISH OF MASSACHUSETTS, GARDNER, MASS.
THE LILLY COMPANY, HIGH POINT, N. CAROLINA
PRODUCTOS AUROLIN, S. A., MEXICO CITY



WHY WOLVERINE?

Wolverine specializes in the development of CUSTOM FINISHES. A distinctive color that could be merchandised by your company need cost no more than an ordinary finish . . . could be the answer to your presentation of a new product line.

If your current source is presenting you with creative sales-making finishes, our services may have little appeal. But, if you want FRESH THINKING, our finish engineers would welcome the opportunity of working with you to develop NEW FINISHES that may increase the SALES of your products.

WOLVERINE FINISHES CORPORATION

836-50 Chicago Drive, S. W. · Grand Rapids 9, Michigan

Specialists in the Manufacture of CUSTOM Industrial Finishes . . . Stains, Fillers, Glazes, Lacquers, Enamels, Synthetics.

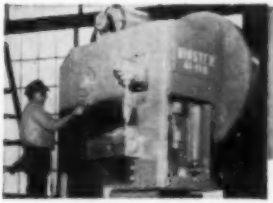
Plants in Grand Rapids, Michigan; Louisville, Kentucky; and Morganton, North Carolina

Paint it the new way

FINISH IT FASTER . . . SPRAY PAINT IT WITHOUT AIR!

There's something new and better in spray painting. You can now eliminate as much as 50% in paint loss due to overspray. Eliminate waste, increase production and lower costs with new Airless Spray Painting. See how the Airless process works to save you materials, time and operating costs. You must see how it works . . . BE SURE TO ASK FOR A DEMONSTRATION.

Today in painting . . . Air is for the birds!



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HOT SPRAY AND AIRLESS SPRAY COATING EQUIPMENT

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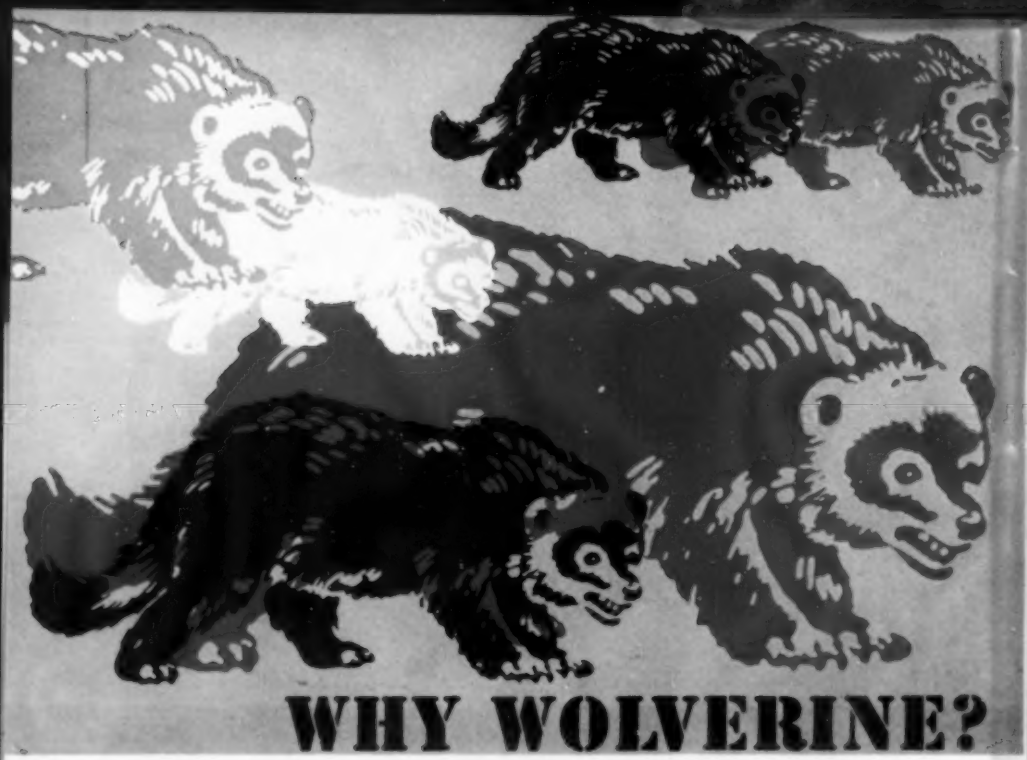
In Canada: 864 Pope Ave., Toronto, Ontario



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Plants in Grand Rapids, Michigan; Louisville, Kentucky; and Morganton, North Carolina

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Today in painting . . . Air is for the birds!

BEDE PRODUCTS CORPORATION

HOT SPRAY AND AIRLESS SPRAY COATING EQUIPMENT

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In Canada: 864 Pape Ave., Toronto, Ontario

Mac's

SMOOTH FLOW
SPRAYING STAINS

These stains are *formulated along entirely different lines* from any spraying stain thus far made. They are really the stains of the future for all soft and semi-soft non-pore woods.

They are fool proof in spraying applications, may be applied in any manner, either wet coats or dry coats, will actually uniform the various contrasting species of the same wood, and will dry in one hour to an even or uniform color without dark spots in the soft part of the wood.

They are particularly made for use on Tupelo, Gum, Bass and Pine, and will give good uniformity on Beech, Birch and Maple woods.

They also produce an excellent foundation for the top coats because they leave a bodying film on the surface after first penetrating the wood fibres. They do not raise the grain of the wood—actually, after the stains are dry the film is smoother than the wood was before staining.

May be coated over with sealer and lacquer or any other acceptable top coat finish in one hour, and will give to these coats additional body and a tough, flexible finish.

Mac's Smooth Flow Spraying Stains are made to give both clear transparent finishes and also formulated to give semi-transparent results without an opaque or painted look. Are manufactured in various colors.

When ordering advise color desired and kind of wood on which it will be used. Order a 5-gal. can at drum price and convince yourself.

"Eighty-two Years of Service"

The Lawrence-McFadden Co.

Headquarters for Fine Finishing Since 1875

7430 STATE ROAD PHILADELPHIA 36, PA.

In 36 HOURS you'll get an answer to your Paint Stripping Problems when you send them to DuBois' New

Send us eight specimens of the work to be stripped or test panels specially prepared if the work is unwieldy.

Thirty-six hours after receipt of the work, a report will be on the way back to you—by telephone if urgent.

Tag each part with name, date and essential problem details including requirements, as, hot and cold methods, tanks available, etc. Write separately, outlining problem, to whom report should go. No charge or obligation, of course.

The DuBOIS Co., Inc. Cincinnati • Los Angeles New York • Dallas

NEW PAINT STRIPPING CLINIC, CINCINNATI 3, OHIO

PITTSBURGH PAINTS

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

Thermo-Setting Acrylic Enamel

Sets a new standard for industrial finishes in toughness, mar resistance and durability

• **Pittsburgh's new DURACRON** is a revolutionary departure from today's baked enamels. It is a basically new chemical composition developed for the finishing of refrigerators, home laundry equipment, ranges and air conditioning units.

• **It has superior adhesion** to bare metal or primer. It is remarkably tough and durable either as a one-coat enamel or over primer. It retains color and gloss for prolonged periods at temperatures up to 400°F. DURACRON also provides greater resistance to detergents, will not show stains from grease, fruits, mustard, etc. It withstands effects of salt spray, humidity and other corrosive atmosphere. In short, it's a sanitary, taste-free, mar-proof liner for food cabinets.

• **New DURACRON** can also be used advantageously on many other products to improve performance of enamels now used. We'll gladly provide you with additional information. Mail coupon below to Pittsburgh Plate Glass Company, Industrial Finishes Division, 1 Gateway Center, Pittsburgh, Pa.

Pittsburgh Plate Glass Company, Industrial Sales Division,
1 Gateway Center, Pittsburgh, Pa.

Gentlemen: Please send me additional information about your revolutionary new DURACRON.

Name_____

Company_____

Address_____

City_____ County_____ State_____

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series 223

XSA Dual-Fuel Burners

A Sealed-in Excess Air Burner
For Rich or Lean Operation
On Gas or Light Oil
With Flame Safety

For detailed engineering information, consult your nearby North American combustion specialist or write for bulletin 223

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The NORTH AMERICAN Mfg. Co.
Combustion Engineers · Cleveland 5, Ohio

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For further information on what manufacturers have to offer —literature, products, supplies, etc., mentioned in the editorial departments, use "Reader Service" return card in the rear section of this issue, page 134.

Industrial FINISHING

APRIL
1957, Issue

Reader Service Department

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At Your Service

Send your inquiries to **INDUSTRIAL FINISHING** Magazine for information about technical problems, methods and processes; and for sources of supply for materials, equipment and supplies to be used in connection with surface preparation and conditioning, paint application, sanding, paint drying and baking, rubbing, polishing, etc.

Surfaces to be completely or partially coated for protection, decoration or for any other purpose, include components and articles made of metals, plastics, woods, and composition materials; also paper, leather, rubber and fabrics.

The services of testing laboratories, finishing consultants and special technicians are often available.

These inquiries are promptly answered. As a result, new products, materials and sources of information are continuously being uncovered; valuable contacts are made and timely suggestions for future articles to be published are often developed.

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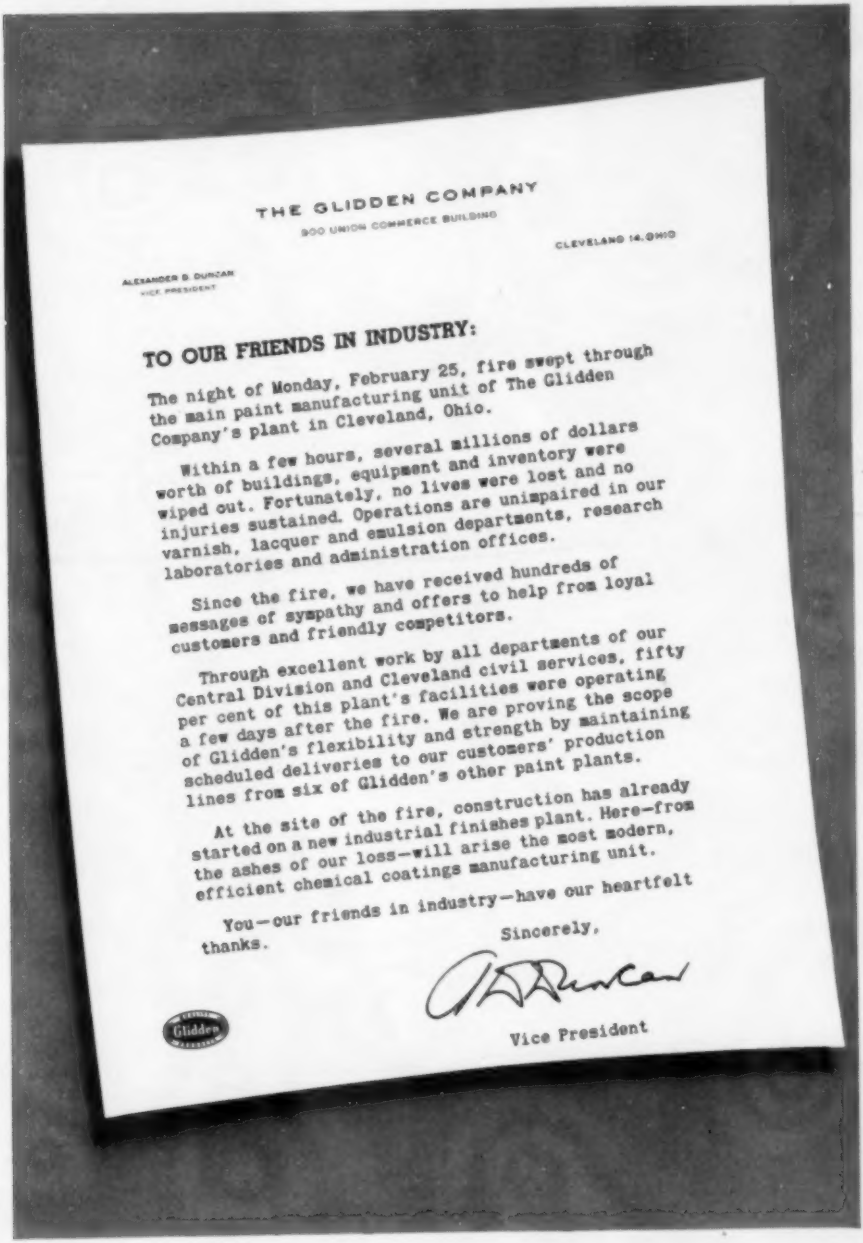

THE GLIDDEN COMPANY

900 UNION COMMERCE BUILDING

CLEVELAND 14, OHIO

ALEXANDER D. DUNCAN
VICE PRESIDENT

TO OUR FRIENDS IN INDUSTRY:

The night of Monday, February 25, fire swept through the main paint manufacturing unit of The Glidden Company's plant in Cleveland, Ohio.

Within a few hours, several millions of dollars worth of buildings, equipment and inventory were wiped out. Fortunately, no lives were lost and no injuries sustained. Operations are unimpaired in our varnish, lacquer and emulsion departments, research laboratories and administration offices.

Since the fire, we have received hundreds of messages of sympathy and offers to help from loyal customers and friendly competitors.

Through excellent work by all departments of our Central Division and Cleveland civil services, fifty per cent of this plant's facilities were operating a few days after the fire. We are proving the scope of Glidden's flexibility and strength by maintaining scheduled deliveries to our customers' production lines from six of Glidden's other paint plants.

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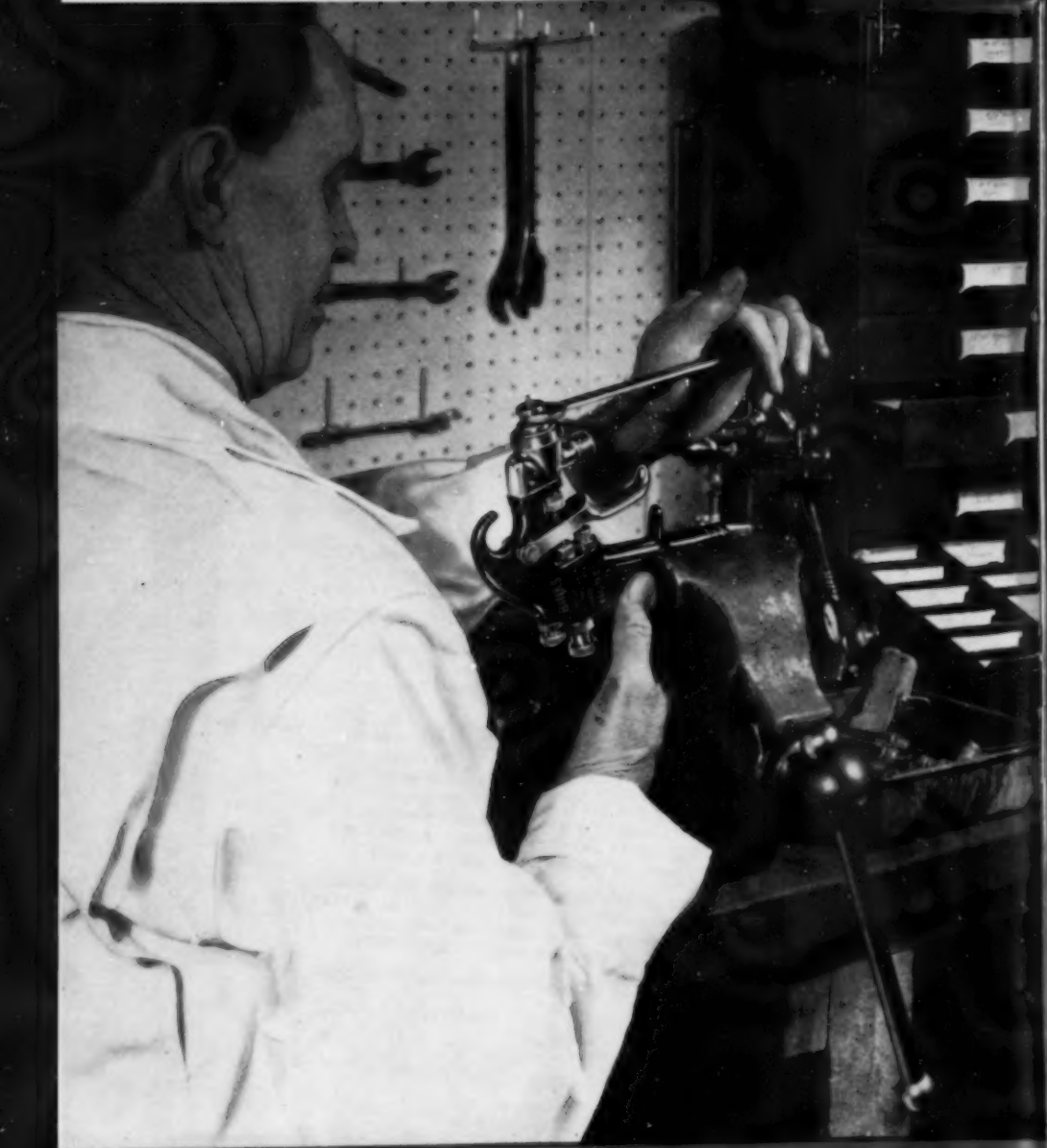
You—our friends in industry—have our heartfelt thanks.

Sincerely,

Vice President



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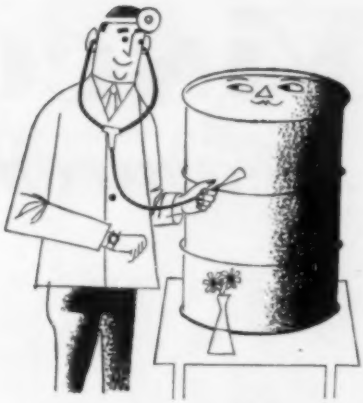

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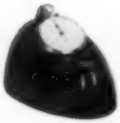
Viscosity Measurement

ZAHN CUP



FORD CUP

BY EDWARD BERBERIAN
Carpenter-Morton Co.*

VISCOSITY, AS APPLIED IN practical industrial finishing, is the resistance of a liquid coating or paint to flow. There are, of course, other more theoretical definitions of viscosity and consistency referring to specific coatings and plastics; but for all practical purposes the above definition should suffice.

The important point to keep in mind is that measuring this resistance to flow (determining viscosity), if properly and carefully determined initially and at regular intervals, as the coating is being used, can be a valuable guide in:

1) Achieving and maintaining proper flow in the paint.

2) Arriving at and maintaining the correct solids in the reduced coating, and therefore assuring the right dry film thickness.

Correct Uniform Viscosity Assures Better Performance

Briefly reviewing the importance of the above points, we note the following: The flow of a coating—in spraying, dipping or flow coating application—is dependent, to a very large measure, on the reduction and type of reducer used.

Measuring the initial viscosity of the properly reduced material and maintaining that viscosity as the

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coating is used—this helps to assure uniform and proper flow at all times. Result: A smooth film surface, free from the usual flow marks and stirations, with a minimum of flooding or floating.

Sufficient and uniform dry film thickness will result in a final product that meets the necessary requirements for protection and beauty. All of us are familiar with the difficulties that even small variations in film thickness can cause. Heavy films can result in wrinkles, sags, poor drying or poor curing properties. Thin films (that is, too thin for the results desired) give poor coverage and inadequate protection; also, a lack of fullness or richness in the final coating.

Using a material at correct viscosity (provided other factors and conditions are right, too) will result in the correct film thickness. Establishing a viscosity standard and maintaining this standard throughout the application operation is a vital factor in assuring this correct film thickness.

For Measuring Viscosity; Ford Cup and Zahn Cup

Many different instruments are available for measuring viscosity. However, the most practical and widely used instrument in industrial finishing is the cup viscometer or, technically speaking, the efflux type of viscometer. There are different makes of cups used for measuring the viscosity of paint and each one will produce a different reading in the same paint; therefore, it is very important for comparative purposes to specify the number and make of cup used.

The two cups most widely used by both paint manufacturers and paint users are the No. 4 Ford Cup and the No. 2 Zahn Cup. It is also very important to measure viscosity at a specified temperature, usually 77° F. (plus or minus 2° F.). As the temperature of any liquid decreases, its viscosity increases. Conversely, as its temperature is increased, its viscosity decreases. This viscosity change, due to temperature change, occurs without any modification in the paint, in the reducer or in the amount of reduction.

The use of these two cup viscometers is straight forward and simple.

Ford Cup is Positioned Stationary and Level

When using a No. 4 Ford Cup, the stand that holds the Cup is first leveled. The paint or lacquer to be measured should be at a temperature of 77° F. A small container is placed on the stand, under the Cup, to catch the flow out of paint or lacquer. The operator places his finger under the Cup and holds it against the small center hole or orifice through which paint will flow when he is ready to begin timing it. With the other hand he fills the Cup with the paint or lacquer to be measured, carefully scrapes off the excess at the top, so the Cup is exactly level full, then withdraws his finger from under the Cup to allow the liquid to flow out in a full slender stream. With a stop watch ready he carefully times the flow of paint from the Cup. At the first significant break in the full flow of paint

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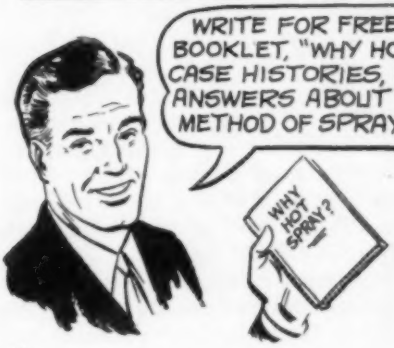
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through the hole in the Cup, the timer stops his stop watch. The reading in seconds of elapsed time is the figure he uses; and he announces or marks down, say 25 seconds, at 77° F. (temperature of material being measured) as measured with a No. 4 Ford Cup. This is a convenient and easy way to measure the viscosity of most liquid paint materials . . . . to use as a basis of comparison. The same material, at the same temperature, should flow out of a No. 4 Ford Cup in the same number of seconds elsewhere. Cup should be 77°F. too.

Zahn Cup is Dipped Into Paint and Lifted Out

When using the No. 2 Zahn Cup (or the other Zahn Cups; there are five in all) the Cup is held in a vertical position and dipped into the paint. The Cup is then quickly lifted completely from the paint in this same vertical position. As the bottom edge of the Cup breaks the surface of the liquid, timing starts with a stop watch.

As with the No. 4 Ford Cup the end point (when the watch is stopped) is reached when the liquid ceases flowing; that is when the first complete break occurs in the liquid stream from the cup's opening or orifice. Capacity of a Zahn Cup is 44-c.c. plus or minus 1-c.c.

In most industrial applications, paint is used in the viscosity range of from 16 to 35 seconds at 77° F., using a No. 4 Ford Cup. On the No. 2 Zahn Cup the same material at the same temperature would have a range of from 25 to 45 seconds. Herewith is a conversion table of this range of readings:

No. 4 Ford Cup Seconds	No. 2 Zahn Cup Seconds
16	25
20	29
24	33
30	40
35	45

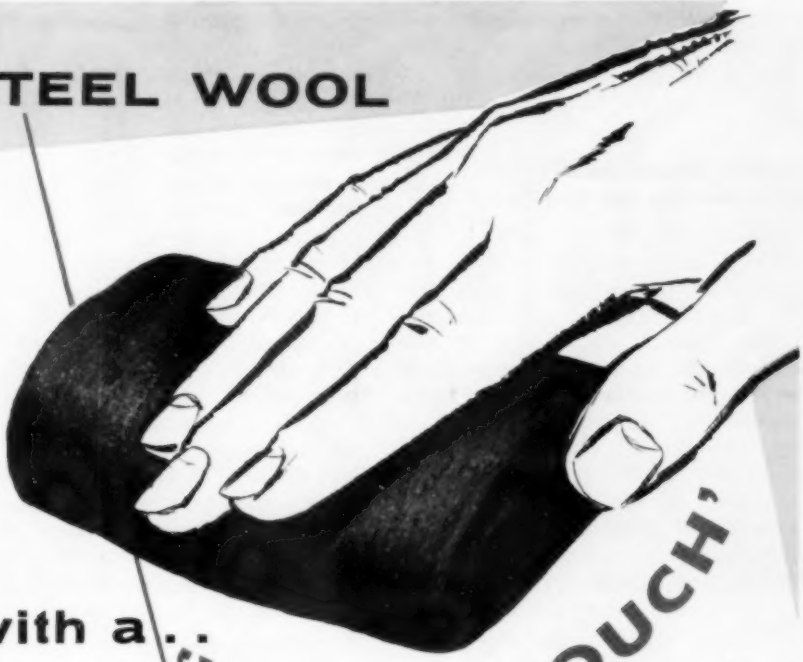
Of course, this viscosity range may vary somewhat for certain products and different methods of application. For instance, new developments in flow coating indicate the use of paint at viscosities of 110 seconds at 77° F., as measured with the No. 4 Ford Cup, or 130 seconds on the No. 2 Zahn Cup. In some cases, even higher viscosities may be specified.

When working with lacquers, it is generally realized that spraying viscosity is at 17 to 20 seconds on the No. 4 Ford Cup at normal room temperature. For example, a lacquer sealer for wood at this viscosity range would contain about 21% solids. Ready to apply top coat lacquers in the same viscosity range, for both wood and metal finishing, would contain from 24% to 30% solids.

Lacquers intended for hot spray application may contain as much as 35% to 40% solids. In these cases heat is used, rather than thinner or solvent, to reduce the viscosity to reasonable operation application consistency. Therefore, at 77° F. these hot spray lacquer formulations usually fall within the viscosity range of 40 seconds to 105 seconds, as measured with the No. 4 Ford Cup.

A manufacturer of industrial coating material should specify the proper viscosity for its specific end use. Obviously, close cooperation

STEEL WOOL



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between the supplier and the user of the material is necessary before any changes are made in the reducer, type of reduction, and in viscosity.

Paint Mfr. Should Specify Proper Viscosity for End Use

Many complaints made by the user of a coating material to the manufacturer about "viscosity of the paint being wrong," when carefully checked, often show up deficiencies in operational procedures in the user's plant. Some of these deficiencies occur as a result of widely fluctuating temperatures, improper additions of paint and thinner, insufficient agitation or mixing after the addition of thinner, incorrect viscosity readings, faulty application of the coating, and poor control standards. These factors, as well as others, should be carefully investigated before changing any viscosity and reduction standards that have been specified by the material manufacturer.

In conclusion, let us all be reminded that paint viscosity is important. Measuring or checking the viscosity at regular intervals is even more important, as solvents evaporate and, as a result, the viscosity of the material changes. Viscosity should be checked to determine the degree of change and used as a guide for restoring prescribed standards. Measuring the viscosity of paint and lacquer materials has been simplified to the point where anyone with reasonable intelligence can make these tests rapidly and correctly.

Binks Dallas Branch Moves

The Dallas, Texas branch office of Binks Mfg. Co. has moved to a new building located at 8005 Sovereign Row, Dallas, 35. The move was effective March 1. Binks manufactures a complete line of spray painting equipment for industrial finishing

The new 7000-sq. ft. building will house air conditioned office quarters, a complete parts stock, and well-equipped repair facilities staffed by factory-trained specialists. An off-the-street parking lot and attractive landscaping are other features.

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A Short Course in Paint & Varnish Technology will be offered by the School of Chemical and Metallurgical Engineering at Purdue University from June 24 through 28, 1957. For further information contact Professor Allbright at Purdue University in Lafayette, Ind.

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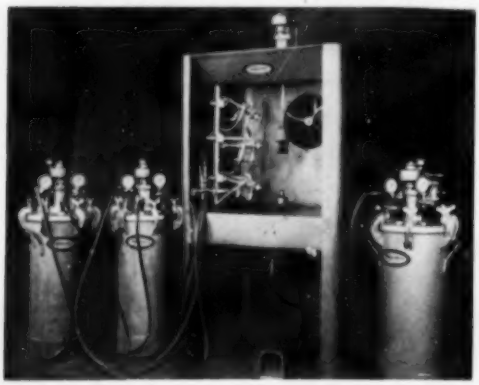
When to Consider the use of Automatic Spray Equipment

BY ERIC H. COCKS
Plant Manager, Eclipse Air Brush Co.

HIGH LABOR COSTS today are making it desirable for efficient plant managers to investigate all possible means of lowering the final cost of their products. For most production processes the challenge of automatic manufacturing has been well met. There is ample information available concerning increased production through the use of modern equipment, specialized machinery, holding fixtures, special tooling, etc.

The spray painting of parts, sub-assemblies and, in some cases, complete products can also be automated to a high degree. Automatic spray painting is not new. World War II added impetus to the special machinery field and hundreds of machines were made to finish defense products at reasonably high speed. The more recent emphasis on automation in industry has also directed attention to spray equipment. More manufacturers have become aware of the need for a completely automatic process from start to finish. Several firms now offer automatic painting equipment, and most of them are capable of supplying excellent automatic machinery.

Semi-automatic machine for spraying a number of objects which may be suspended or placed on a horizontal turntable and then rotated. Different colors may be sprayed.



A well founded background of knowledge and experience in the design and use of spray equipment itself is essential in order that trouble-free high production equipment can be made. Unfortunately, there are occasions when the specialized machine builder who lacks a full background of experience in designing and building in spray painting equipment will build an automatic painting machine which fails to live up to expectations. Disappointments are bad not only for the potential user and supplier, but automatic spray painting gets a black eye as a result. The potential user goes back to his old meth-

ods, and swears that all automatic painting belongs to Rube Goldberg.

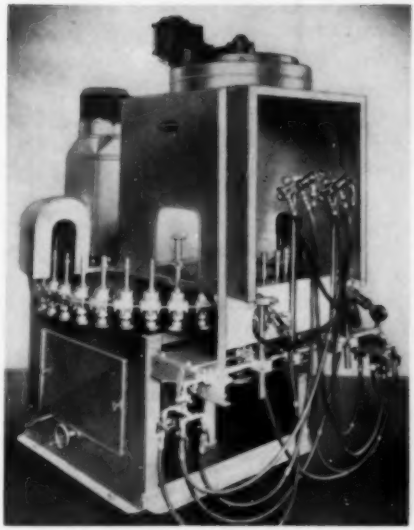
Some Facts to Consider About Automatic Painting

The purpose of this article is not to sell automatic equipment. It is intended to outline some basic facts to guide you as to what to expect when considering the use of such equipment. It will outline ideas which should be useful in designing a complete finishing system. It will tell you what to look for and what kind of questions to ask when you contemplate buying. It will remind you that whenever you contemplate the use of even the simplest automatic equipment you should deal with a reputable spray equipment manufacturer. His engineers and representatives have had the varied experience to give you the answers you need.

Too many manufacturers make the mistake of considering the painting of a product as something to do after the production headaches are over—something that is simple and easily disposed of. Nothing could be further from the facts. A well applied coating protects the surface, hides blemishes, and gives the product that sales appeal which may be just what is needed to make the product sell itself in a highly competitive market.

Semi-Skilled Attendants; Continuous Fast Production

One of the most obvious advantages of automatic painting is that it permits a reduction in manhours. On simple machines, highly skilled painters can often be replaced with semi-skilled labor. On



Rotary turntable type spraying machine for various cylindrical objects, such as projectiles, rocket assemblies, etc.

specialized automatic equipment an attendant is needed who has a basic knowledge of spray painting in general, and some mechanical aptitude. With the rate of production being set automatically, the finishing department need no longer be a bottleneck.

A machine does not tire toward the end of a shift, and an automatically controlled spray gun does not deviate when a cute blonde walks by; neither does it have any personal problems. Automatic equipment generally produces a finish which is superior to that which can be put on by hand, and these desirable results will be repeated indefinitely. Also, there is usually a savings in materials because of less wastage. [*Cont'd on page 36*]

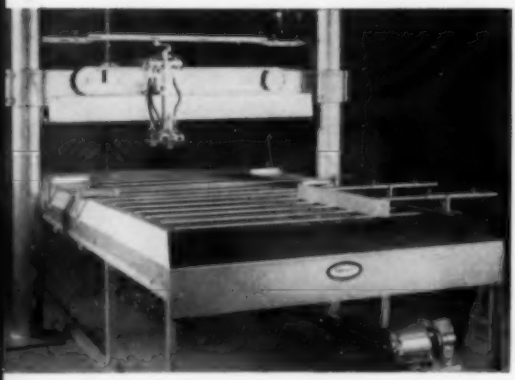
Surface Preparation First; Equipment for Painting

The correct procedure to follow in preparing an article for automatic painting does not differ greatly from what would be followed if it were painted manually. In other words, the article must have a clean surface that will be acceptable to the type of coating to be used. In the early stages of planning the paint supplier should be consulted in reference to what type of cleaning and pre-treatment may be needed.

When automatic painting facilities are used the parts are carried through a continuous cycle. Operators load, unload, adjust and clean equipment, etc.

Equipment needed for automatic painting will range from the simplest timer-operated gun, to a complex mechanism that includes all of the modern devices available to industry today. There must be facilities for carrying the part to be painted, for correctly locating it during the painting operation, and for supporting it until the coating has dried sufficiently for it to be removed from the holder. Then it is necessary that the carrying vehicle return to the loading station. Obviously this calls for a smoothly operating conveyor. Also necessary will be some kind of drying or baking equipment, an exhaust system, safety devices and miscellaneous accessories such as tanks, hose, filters, compressor, etc.

Horizontal reciprocating spray unit for coating flat work. It is completely automatic.



Types of Parts or Products To Be Painted Automatically

The types of work likely to be painted can usually be divided into three categories: Two dimensional surfaces or flat work, regular shaped objects, and irregular shaped objects. The latter two may be subdivided into internal and external painting.

A typical example of two dimensional or flatwork would be the painting of flat metal sheets, fiber board or wall board. This could be supported flatwise in level position on a wide apron-type conveyor consisting of cross slats attached to chains, a woven wire mesh belt or a series of parallel chains or wires. One or more automatic spray guns would be mounted to move back and forth at right angles to the travel of this conveyor, to spray a steady blending criss-cross pattern over the work. Paper, leather hides, backing for mirrors and similar objects are painted in this way.

Regularly shaped objects for which standard machines are available would include such items as military shells, lamp shades, golf balls, fountain pen caps, or gener-

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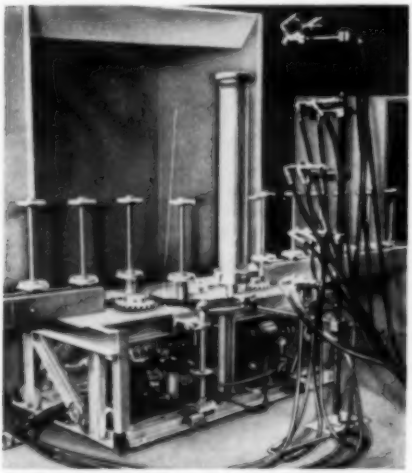

Spindle type automatic rocket container spraying machine.

ally speaking, anything that could be readily rotated on its central axis. These articles are usually carried on the vertical spindles of a spindle chain conveyor, or on the upright spindles of an indexing turntable. The work is rotated at a comparatively high rate of speed while it is being sprayed. It is preferable to have the work rotating but not traveling forward during the spraying operation, as this will minimize offspray and permit the utmost in repetition of results.

Irregular Shaped Articles; Special Requirements

An example of painting an irregular shaped article would be an object such as a chair, large box, machine parts, vacuum cleaner, etc. If these articles were rotated at high speed they would oscillate and their different surfaces would be at varying distances from the spray gun. Usually they would be carried by an overhead conveyor, spindle conveyor or indexing turntable; they would be rotated at a comparatively slow speed and it would not be necessary to halt their travel in relation to the spray gun during spraying.

A regular shaped object, likely to be coated on the inside, might be a can, drum, barrel, military shell, tubes or pipes, etc.

A blitz gasoline can is a good example of the inside of an irregularly shaped object. The interior of this type of can has a number of sides which require painting.

Design and Cost Elements in Various Types of Equipment

A further category, which might call for what you would term "highly specialized equipment," would include custom built equipment designed after a careful survey of a manufacturer's special requirements, and made to tie in with some particular manufacturing process. This would include equipment for such jobs as striping steel drums or the outside and inside painting of long lengths of pipe.

The design of any machine is a compromise. In most cases it will combine many excellent features together with some which might appear to be less desirable. This is because we must consider production, initial cost, ease of maintenance, ease of loading and unloading, installation requirements, shipping facilities, operator intelligence and numerous other factors.

Cost is chiefly influenced by production requirements and drying time. For example, if a particular

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Fifty years ago, women used hand-operated, wooden-tub washers like the 1907 model in the drawing. Built for their utility value, not beauty, these units were generally kept on the back porch or in the basement.

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But, appliance manufacturers realize that a product finish must offer complete surface protection as well as beauty, must resist heat, corrosion and other damage, stay new-looking for years.

That's why leading manufacturers of appliances and many other products specify Glidden NUPON* primers and NUBELITE enamels for their finish schedules. They know that these superior product finishes provide all of the film-building and specific resistance qualities required for maximum appliance life.

*A Glidden Trade-Mark

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Industrial Finishes for Every Product

part is to be painted at the rate of 600 pieces an hour, and the required drying time is three minutes, it could be readily handled on a simple 4-ft. indexing table. If the drying time could be reduced to 1½ minutes, the same machine would produce 1200 pieces an hour. Similarly, if the drying time is increased to six minutes, the production will be cut down to 300 pieces an hour.

Spindle Type Conveyor Versus Spindles on Turntable

Suppose production had to be maintained at 1200 pieces an hour and the drying time of six minutes could not be lowered. Then we would need a chain-type conveyor with approximately 150 spindles against the 36 spindles used on a circular table. These spindles would require additional tracks, supports, horsepower, shafts, sprockets, extra maintenance, and such like. The completed unit would also require careful fitting and alignment in the customer's plant, as against placing a 4-ft. turntable in position.

It can be readily seen that the cost of the spindle conveyor unit would necessarily be higher than that of the turntable. From a design point of view there is no type of chain conveyor which will hold a product as steady as the turntable. The turntable also lends itself to inside and outside spraying, whereas a chain conveyor is not as reliable where inside painting is to be done through a small hole.

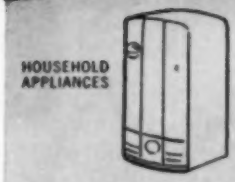
The turntable type unit is more often used with a lacquer system where a minimum of baking or drying equipment is necessary. With some modern synthetics, particularly the catalyst types, extremely fast drying can be obtained. All of these factors should be discussed with your paint supplier, as they have a direct effect upon the cost of your automatic painting equipment. From the above it can be seen that the length of the conveyor increases in proportion with the production required and the length of drying time.

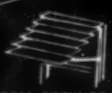
Aim for Perfection but Compromise With Realities

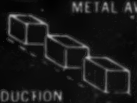
In designing fully automatic equipment it is important that every effort be made to obtain a unit which will approach perfection as nearly as possible. But strong consideration must be given to the fact that perfection in theory is seldom obtained in practice.

Where fully automatic equipment is fitted into a production line, provision should be made so that it is flexible enough to cope with any foreseeable situations that may arise. These could include the desirability of passing the article to be sprayed through the machine without painting, the ease with which maintenance can be carried out, and the possible necessity for changing a product design which would require a slightly different spraying operation from the one for which the machine was originally designed.

The machine should be designed as simply as possible in keeping with the work it has to do. It must be sturdy, with special attention given to the spindle or holder that will carry the work. Mechanical







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movements should be designed so that they will be positively operated. In many cases maintenance will be neglected; it is important to keep this in mind. Also, it is likely that there will be times when paint will accumulate on moving parts of the machine. If this is not considered there will come a time when so much paint has built up on a part that it will no longer function.

Explosion-Proof Motors; Safety; Controls, and . . .

Usually motors must be explosion proof, and all electrical equipment should be enclosed, as paint on contacts does not make for trouble-free operation.

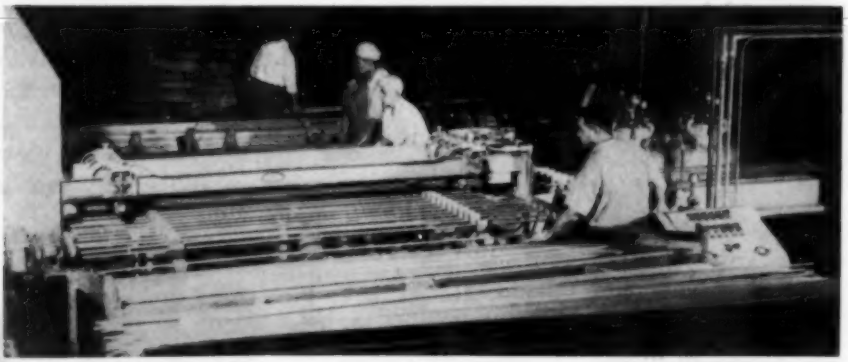
In many cases the use of hydraulically-operated components will be advantageous. On the simpler type of machine, pneumatic operation is very convenient, as there is always a supply of compressed air available.

On high production machines, it is essential that sufficient safety devices be included so that the machine cannot damage itself or the work if a stoppage occurs. Controls should be kept as simple as possible and should be interlocked so that malfunctioning cannot occur through negligence of the operator. The production speed should be easy to change where this is required.

Auxiliary Facilities Included With Automatic Equipment

Another item which will affect the final cost of the machine, but which can be varied, is the amount of auxiliary equipment supplied. In some cases, particularly where multiple color or frequent refilling of tanks is required, it is desirable to have additional tanks manifolded together. A separate tank manifolded into the system, to be used only for solvent for cleaning, is a great time saver.

Every installation should have air filters of adequate capacity. With multiple gun installations, the use of fluid regulators and individual air regulators for each gun is desirable. All of these accessories



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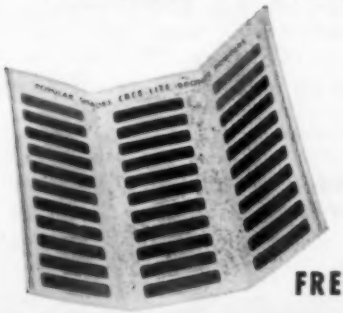

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increase the cost of the unit, but they also make for easier maintenance or cleaning, and result in better control of equipment and the finish produced.

Automatic in Production; Supervision; Maintenance

When considering fully automatic equipment it should be borne in mind that there is no such thing as a push-button unit which can be installed in a factory, started, and left to go on its own merry way without any attention. In some cases we can come close to this; in others we can come nowhere near it. There are many variables that make this difficult. The viscosity of the paint may change, air pressure may drop, guns and nozzles will need cleaning. Quality control or inspection will call for more or less paint. There may be color changes required for certain products.

In most cases it is profitable to use an experienced spray painter for these duties. However, with the correct guidance, relatively unskilled personnel can soon take care of an automatic painting unit. A positive must is intelligent supervision, capable handling, and the realization that sufficient time must be provided for the necessary cleaning and maintenance.

After Installation Give it a Fair Trial

When it is first installed, anything other than the simpler type of automatic unit may require more attention than was anticipated. However, this rapidly diminishes as experience is gained with operation of the unit. After the machine is installed and placed in operation, the know-how that your supplier has gained from years of experience becomes invaluable. In some cases he may solve a problem merely by changing a nozzle or the air pressure. To him this is a simple matter, but even the most skillful machine builder would be lost if he did not have a background of experience in spray equipment.

The Important Start; Yes, It Will Cost Money

As a final word, if you are responsible for the layout of any equipment that includes painting, don't underestimate the money it will take to apply that final coat. And, above all, don't hesitate to call upon experienced help which is available for the asking, from your reputable spray painting representative. Also, remember that although you could do it, you wouldn't try to make your own lathe, and if you did you would not expect to be able to make it as cheaply as the people who specialize in this work. The same holds good for spray painting equipment.

Additional Data Sheets on Wyandotte Metal Cleaners

Data for eight additional Wyandotte Metal Cleaners is now available on standard 8½ x 11-in. specification sheets. First introduced in 1955, these data sheets for the Wyandotte line of metal cleaners have been praised by both production and supervision personnel. They may be secured from local Wyandotte salesmen or by contacting the nearest Wyandotte Chemical district sales office. Each data sheet gives: 1) Practical use-directions; 2) Operating benefits; 3) Product description; 4) Container data.

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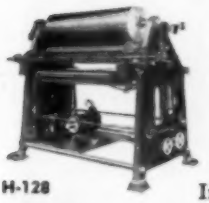

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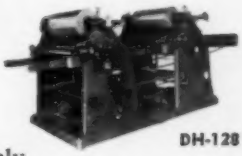

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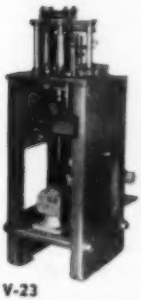

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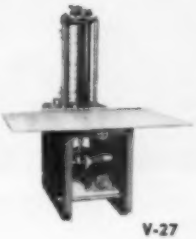

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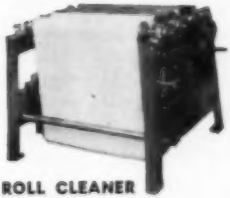

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Finishing Polished Metal Parts for REMBRANDT LAMPS

BY EDWARD CIEBIEN
Supt., Rembrandt Lamp Corp.*

IN THIS ARTICLE I will tell you how we apply clear finishes on metal lamp parts.

In a previous article (January issue, pages 66-73) I wrote primarily about wood finishing. While wood finishing is an essential phase of our finishing production, another important phase is that of metal finishing.

*259 E. Erie St., Chicago, Illinois.

Each of these brass tubes being sprayed is supported by a steel rod fitted with a knob at the lower end.

While wood finishing conditions vary due to the variety in types of wood and grain structure, metal finishing is more uniform. Finishing polished brass and silver is more exacting than finishing wood and greater care must be taken in its handling. Metal procedures must be rigid and strictly adhered to, while wood procedures are most effective when they are flexible.

Starts in Plating Room; Then Buffing, Degreasing and....

The finishing of brass and silver does not actually begin in the finishing room. This is started in the plating department. Here the parts made of steel, brass or white metal receive a brass or silver plating, the actual base of the final finish. Following this, all parts are moved to the buffers where their surfaces are polished or buffed to the proper sheen and surface effect desired. From the buffers they are taken to the degreaser.

Each part is thoroughly cleaned in a vapor degreaser prior to finishing. There is a minimum of five finishing operations performed before the parts enter a spray booth. Organic coating is the object of this article so I will not go into the details of plating.

Our finishing room is not conveyorized. It has no ovens nor is

The all-metal bases of these attractive Colonial table lamps are finished in polished brass.

the spraying done by automatic or electrostatic equipment. This may sound old fashioned, but I can assure you that it is not.

A conveyor might reduce our transportation costs but there are certain handling points that cannot be eliminated. Due to this, conveyorizing would not improve the high quality of our finishing nor would it do much toward lowering our costs.

Lamp parts vary greatly in size and are of every conceivable shape. This makes automatic spray equipment impractical.

We are blessed with ample space to allow our finish to air dry. High temperatures used in forced drying create certain problems in our type of manufacturing, so we have ceased to regard ovens as being desirable in our finishing.

Shelf Trucks; Work Holders Prevent Parts From Touching

All small parts are transported and stored on shelf-type trucks. The long tubing is handled on vertical rods that have heavy cast iron bases. For easier handling, many of the smaller parts are placed in trays which, in turn, are placed upon the trucks.

Before the parts are degreased, each one is placed on a holder or tray in such a manner that one part never touches another. The greatest care is taken to keep this separation until after the finish coat is dry. These parts must be handled at different times. Any person who does this handling must wear clean cotton gloves that are furnished by us. These gloves keep surface contamination down to a minimum. This is important be-

cause a finger print on an uncoated surface will ruin an otherwise perfect finish.

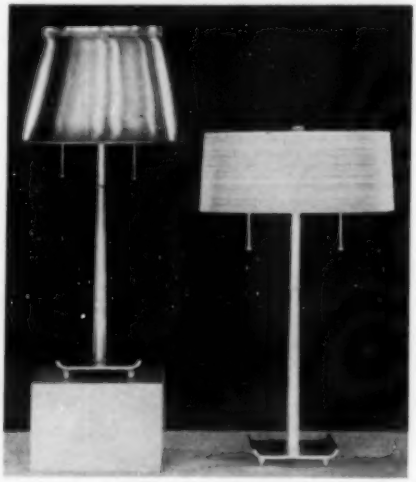
There is nothing unusual about our spraying methods or equipment. We use conventional spray guns and pressure tanks. The operation is performed as any good coating material is applied with such equipment.

We divert from the ordinary in the type of spray room, in methods of handling parts, and in strict material specifications.

Spray Room Air Conditioned; Workers Wear Clean Gloves

The spray room is so constructed that any air entering the room will be filtered. It is imperative that the air in this room be clean, that all dust and lint be removed. Any foreign particles on a polished surface will result in a spot that later appears to be an ugly flaw. Any such particle might be the cause of a void in the protective film. In such a case there will be a violent discoloration caused from the metal oxidizing at this point.

Spraying an all-metal base and pedestal.



Desk lamps. The one at left is finished in Flemish bronze. The base and pedestal of the lamp at right are finished in silver plate.

The spray men are required to wear clean cotton gloves when handling the polished parts. The pieces are always tack ragged and sprayed individually. This is done by placing the piece on a holder (the holder is used in conjunction with a small turntable similar to a potter's wheel) and sprayed while the table is rotating. The use of this method is one way by which we can be reasonably sure that all areas of each part have the proper film thickness. After each part is coat-

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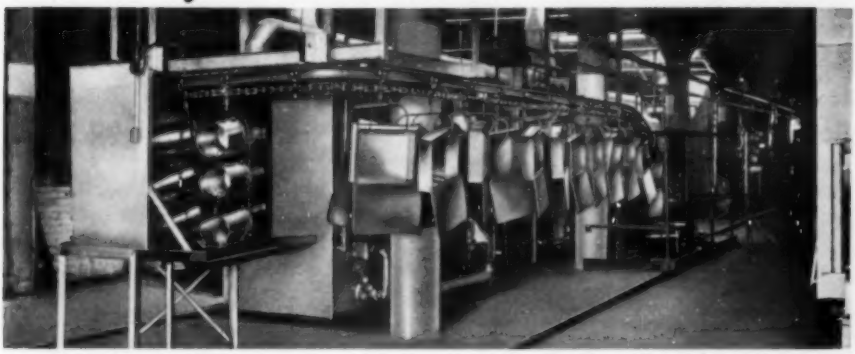

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ed it is returned to the truck (or tray). The truck load of coated parts is held in the spray room until the coating is dust-free; then it is taken to a holding area for curing.

Coating Material Meets Rigid Specifications

Our coating material is made to meet rigid specifications. These specifications are ours and are the result of years of field survey. Our lamps are sold in all parts of the country, so the coating must give adequate protection in atmospheric conditions that are peculiar to any locality.

Spraying clear lacquer on small metal parts for bridge lamps.

These high quality lamps are objects of beauty. Without a good protective coating the quality would not exist and the beauty would soon fade.

The material we use is a lacquer that must withstand moisture, salt spray, sulphur, mild acids, liquor, and abrasions. It must also pass a reasonable cold-check and print test. We know that a film of .015-inch will give adequate protection to insure against deterioration through any normal use or atmospheric condition during the life of the lamp.

Lacquers, Clear and Tinted; What Makes Our Quality

I have described this lacquer only as a protective coating. We use it also as a color medium to produce different effects on brass. Clear light-fast dyes can be added without changing the quality of the film. Colors on brass that range from yellow to red—even to a pure gold—are possible with these dyes, without losing the glitter of the polished surface. The lacquer has exceptionally good adhesive qualities and can be applied in a single coat to produce the desired dry film thickness.

The application procedures are the same as anyone's, so we can say that the following things are largely responsible for our fine quality.

1) All of the parts are thoroughly cleaned and kept clean.

2) No expense is spared to provide a dust-free spray room.

3) Every precaution is taken to remove dirt and moisture from the compressed air.

4) High quality is our primary thought in purchasing materials.

5) High quality is the foremost thought of the finishing room personnel.

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4178

Why Paint Flaked Off New Aluminum Chairs

BY KEN MacKENZIE

THIS STORY CONTAINS a moral and points to a technical need. A friend of mine whom I'll call Jack, had a small spray painting shop. He was never too successful, mainly because his place was located in a building completely unsuited for job finishing on a profitable basis. However, failure was staved off from month to month, mainly because Jack refused to give up. He had a tremendous capacity for hard work, fortified by a sincere desire to produce the best job he could turn out.

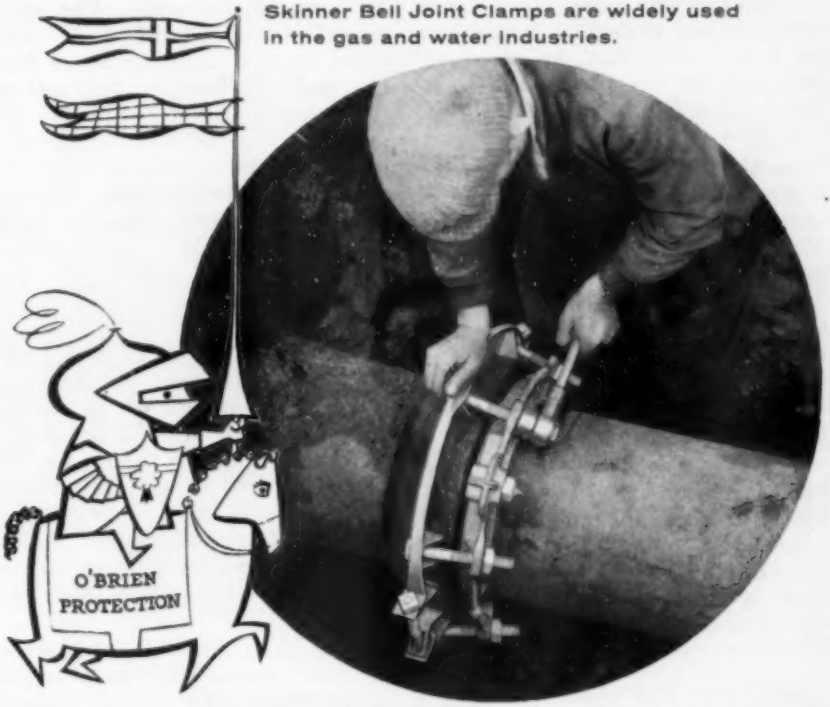
"Relax, Jack. We'll find a way to patch up the flaking paint on those chairs in Chicago—but you can't do the impossible."

Despite this, Jack's affairs alternated between bad and worse. I often wondered what was holding him up, in more ways than one.

Good News: Big Chair Order Offered Jack's Custom Shop

One day Jack called me up to tell me some wonderful news. His business troubles were over. He had finally connected with a piece of business that should take him out of the red forever. After hearing the details, I was almost inclined to agree that it did look very good.

Not too far away was a very large manufacturer of metal furniture who jobbed out a considerable quantity of extruded aluminum chairs that were a part of his line. Since the chair manufacturer had no facilities for treating aluminum, and since his business had long outgrown his own limited painting capacity, he resorted to jobbing out the surplus. The procedure was as follows: Fabricated chairs were sent to a metal treating shop for anodizing; then they were sent to a job shop for spray painting. The custom finisher then either returned the chairs to the chair manufacturer or forwarded them to the buyer. [*To page 56*]



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And so, finally some of this chair business had landed in Jack's lap. As a matter of fact, he had been promised all the chairs his plant could paint. It really did look good.

Well, the chairs began to roll—from the manufacturer to the anodizer, from the anodizer to Jack, and from Jack to all the world. More and more chairs were painted as Jack increased his production. Then the sky really opened up. The chair manufacturer received an order to furnish all of the folding chairs for the auditorium of a Chicago hotel which was host to the political conventions.

Jack was told to further increase his production. His shop was running 24 hours a day and seven days a week. The anodizer was sending truckloads of chairs to Jack, while Jack was sending truckloads of chairs to Chicago—700 miles away. Everyone was happy.

Bad News: Paint Flakes Off Thousands of New Chairs

One night I received word that Jack had been trying to reach me all day. On the telephone he was so incoherent that I went over to see him next morning. He was certainly in a panic, but I finally got the story. Paint was coming off the chairs—all of those chairs away out in Chicago, with the convention only weeks away.

Bringing them all back east was out of the question. However, about a dozen were rushed back as representative of the entire lot.

As soon as they arrived, everyone concerned began to examine them, each with righteous indignation against any attempt to impugn his part of the work. The chair manufacturer blamed Jack. Jack could think of nothing better than the sad old lament: "Something must have been wrong with the paint." The paint manufacturer and his chemists were outraged, insisting that every lot was right on the button with previously satisfactory batches.

Deluxe Folding Chairs of Heavy Aluminum Tubing

It was at this point that I was called in as a sort of impartial friend of all concerned. Before describing my findings it might be well to describe the handling of the chairs after they left Jack's shop. They were deluxe folding chairs made of heavy aluminum tubing. The seats were upholstered but the backs were contoured, without padding.

Each chair was shipped in an individual carton. When they arrived in Chicago, they were removed from the packages and were leaned against the walls in groups of about 20 chairs. They were designed to sort of nest in a vertical position. It was while shifting some of these stacks that the customer noticed the enamel coming off the upper back frame where the chairs made contact.

Only the Bow That Formed Top of Chair-Back Affected

When I examined the returned chairs one fact seemed peculiar. The only point of paint failure was the bow which formed the upper part of the chair back. This comprised the upper 4-in. as the chair leaned in a folded position. The

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ILLINOIS BRONZE POWDER CO., INC.

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others had discounted this fact as being due to this area being the point of contact. However, when we tested the enamel on other parts of the chairs, we found it anchored as if it were part of the metal. Everyone agreed somewhat reluctantly that this absolved the paint manufacturer. I also noticed that there was a very sharp line of demarcation between the area of perfection and failure, on every chair. In fact, hitting them progressively with a hammer demonstrated that each chair had an area where the enamel would even bend with a sharp indentation, and an area where a hammer blow scattered dried paint film like confetti.

At this point the chair manufacturer offered an amusing theory. He ventured the opinion that Jack's oven was too cold in the upper area, thus failing to cure the enamel in this zone. I reminded him that undercured paint might be soft but it certainly would not be brittle. And furthermore, since heat rises, "cold spots," if any, would be along the bottom of the oven. He then reversed himself, declaring that they were either burned or that Jack's handling had soiled the area. I argued that the area of failure was too complete and too sharply defined to fit either theory.

My Theory: Chairs Didn't Go Deep Enough into Tank

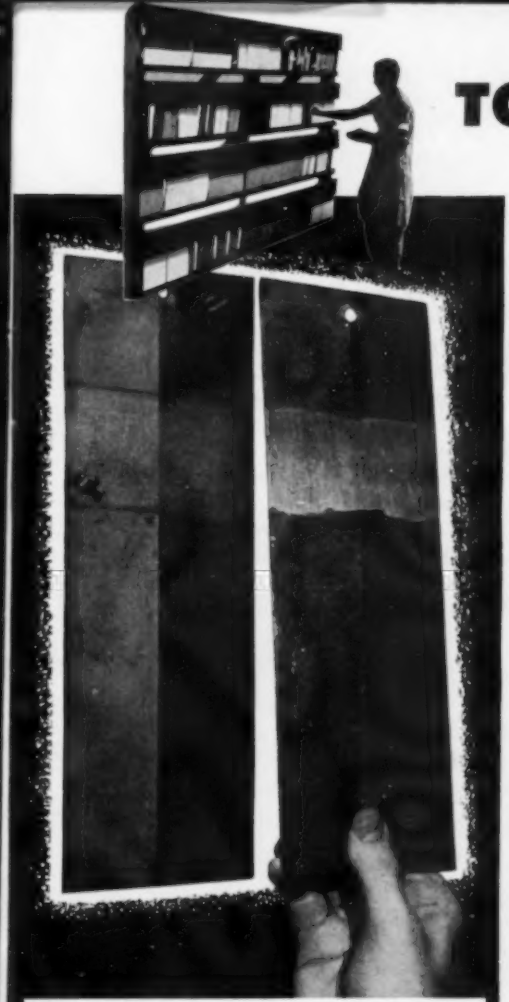
My own theory was that the tanks of the anodizer were at fault. I reasoned that they were not deep enough to "take" the chairs in the vertical position necessary for drainage; or that under the stress of top production the anodizing solutions were allowed to become contaminated with floating debris, or weakened in their surface area with replenishing water.

By setting up a pilot light and a couple of contacts we demonstrated that the area from which the paint was chipped had perfect conductivity, while that from a sample anodized but unpainted chair, resisted the passage of electric current*. Unfortunately, we had no unpainted samples of the Chicago order.

The chair manufacturer argued that the electric conductivity of the chipped area was due to the anodizing coming off with the paint. In his opinion this was further proved when we were unable to chip off enamel further down without exposing virgin metal. When we removed some paint with a remover, he insisted that the lack of conductivity was due to wax.

Of course, the manager of the anodizing shop was very indignant too. By the time we reached his place his tanks were full of new solutions, clean and pure and full strength. When we asked how he had managed to completely immerse 36-in. chairs in a tank only 30-in. in depth, he solemnly explained that he had never immersed more than four chairs at a time, tilting them so they were completely submerged. A little mental arithmetic showed the impossibility of squeezing so much production

*The anodized coating displays relatively high resistance to corrosion and abrasion and provides high electrical insulation to the underlying metal.



The durability or weather test, subjects paint test panels to direct sunlight, rain, wind and extremes of heat and cold. ZINOXIDE primer used on the right hand panel, withstood 14 months of exposure, proving highly superior corrosion inhibiting characteristics when compared with the best of other primers used for the same service.

The other sample, at left, developed considerable corrosion on the undersurface.

TORTURE RACK for finishes

...helps improve industrial primers

The old saying, "proof of the pudding is in the eating" describes the durability tests employed at Lowe Brothers. Conditions closely duplicating those in actual service are a vital part of testing all new finishes as well as the continual improvement of existing products.

A recent product development program carried out by our Technical Department is a good example.

Extensive tests were made on many types of pigment materials to develop a superior industrial primer. The result—ZINOXIDE—a primer with highly superior corrosion inhibiting properties ideal for the surface protection of forgings, castings and sheet steel products.

For the best industrial finishes, call or write Lowe Brothers, 424 East Third Street, Dayton 2, Ohio

LOWE BROTHERS

INDUSTRIAL FINISHES

also Style-Tested paints for the home

into so little time at that rate. Later, I pointed out this fact to the chair manufacturer.

Jack the "Fall Guy" Was Blamed and Ruined

Believe it or not, Mr. Chair Maker still insisted that Jack was to blame. He maintained that his decision was definitely not biased by the fact that the anodizing shop had been paid in full, whereas he still owed Jack a large sum of money. Neither was he influenced by the fact that he owned a piece of the anodizer's business. What's fair is fair.

"See? 'Old J. B.' was right again. That new sign cleared up a lot of our old finishing problems, eh, Jack?"

Well, the upshot of it all was that the chair manufacturer made some upholstery to cover the faulty areas and arranged with a Chicago firm to fix them. However, he lost money on the order and refused to pay Jack's bill. Jack could not pay his bills either, including his paint bill. Finally the creditors moved in and the shop went under the auctioneer's hammer, with the chair manufacturer buying it up. And, who do you think he put in charge of it? None other than Jack.

So, the chairs are still flowing from the manufacturer to the anodizer to Jack in the same old process. The only change has been that the anodizer has added 6-in. of height to the walls of his anodizing tanks.

Jack is now carefully checking every piece of work that he receives from the anodizer and he wishes someone would market a device for easily evaluating the adequacy of a conversion coating.

New Automatic Spray Finish Machine Catalog Ready

A new illustrated catalogue (12 pages in 2 colors) covering the basic types of automatic transverse spray finishing machines produced by The DeVilbiss Co., Toledo, O., has just been issued.

Transverse machines of four types are covered in the catalogue — horizontal straight line, horizontal contour, vertical straight line and vertical contour machines. Models and specifications of the horizontal and vertical straight line types are included, as well as typical uses. Contour machines in both types are described. These are built to order.

Basic design principles of the transverse machines are a beam with accurate guide rails, a carriage on ball-bearing rollers driven by an endless chain drive and spray guns with completely accurate cams to assure that the guns spray only on the work.

The four types of transverse machines are said to be useful for most products in large scale production and can be easily adapted for special products.

Copies of the catalogue or additional information on specific uses can be obtained from The DeVilbiss Co., Toledo 1, Ohio.

NO GUESSWORK . . .

Between—Operation Cleaning or Paint Preparation Handled Best with a PETERS-DALTON POWER SPRAY WASHER

For more than a quarter century, PETERS-DALTON has been designing, engineering, building and installing Power Spray Washers to meet every industrial need. Tailor-made to the job they are built to perform, these P-D Power Spray Washers have proved their worth through long years of efficient production.

The illustration above is of a single stage steam heated P-D Power Spray Washer with high velocity blow-off. It was designed and built to clean miscellaneous small parts. Among its features are facilities built-in for cleaning the spray risers automatically with steam. This washer was delivered by P-D completely ready for operation.

Perhaps you have production needs that can be answered with a "tailor-made" machine such as the one shown here or requirements that call for installation and construction within your own plant. Regardless of your need or of its size, depend on PETERS-DALTON. Just write, wire or phone — we'll be glad to tell you more.

Representatives in Principal Cities

- *Hydro-Whirl Paint Spray Booths*
- *Industrial Washing Equipment*
- *Drying and Baking Ovens*
- *Hydro-Whirl Dust Collecting Systems*

PD Peters-Dalton INC.

A SUBSIDIARY OF DETROIT RADIATOR CO.

17916 Ryan Road • Detroit 12, Michigan

QUALITY FINISHING
in Library and Laboratory Furniture

BY R. E. HORNE
Finishing Superintendent
John E. Sjostrom Co.*

IN MY LAST article (in March issue pages 82-86) I explained briefly about durability in Quality Finishing. In this article I will bring out some of the important highlights regarding Price versus Quality. Before proceeding, I would like to state that the methods mentioned herein, as used by some furniture manufacturers, are not described for the purpose of discredit, but as a comparison to show what brings about the higher cost in a product that has a high quality finish.

Good Stains, Wisely Used Add Beauty to the Finish

Whether it be a stock or custom finish, it is accomplished in such a manner that it will give the customer not only beauty but serviceable wear. Therefore I believe there is no substitute for stain, as described in the following highlights of importance:

1) Beauty
2) Depth
3) Durability
4) Clarity
5) Penetration
6) Maintenance Care

In factual explanation of these, I offer for debate that staining certainly brings out all of the beauty of the natural wood texture, plus having the color protected by four top coats of finish, giving it greater elasticity in all respects. With this build of material over a stain and filler, as the case may be, you get not only a look of depth but of clarity—a quality that is lost in many finishes. For future maintenance care in years to come, it presents a minor problem—solved sometimes by a good rubbing with compound or, in severe cases, scuff sanded, touched up, and then a clear coat will bring back new life to the finish.

Pigmented Toners Give Color Uniformity but . . . .

This type of finishing material (pigmented toner) proves satisfactory where price and mass production are the main objectives. Its hiding power is terrific, but what is it hiding? We feel that its good features do not overcome its poor ones. In comparison I offer the following:

1) Color uniformity
2) Generally cloudy
3) Poor durability
4) Opacity and depth
5) Expensive maintenance care
6) Surface coating

Yes, it's wonderful for those who wish to achieve color uniformity when using different types of lum-

*Philadelphia, Pennsylvania.

GASWAY ROLLACOATING

SPEEDS PRODUCTION, SAVES ON LACQUER, GIVES SMOOTH FURNITURE FINISH

FURNITURE MANUFACTURER USES ROLLACOATING TO GIVE SUPERIOR FINISH, SAVE ON MATERIAL . . .

. . . and the Gasway coater paid for itself in five months' time

Problem: Colony Furniture Company was building a new line and had to have the lowest possible cost in finishing operations. Tops, ends, fronts, backs, aprons, drawer fronts, in fact every component part had to be finished smoothly, richly, yet economically. All this without too high an initial expenditure for equipment.

Solution: A Gasway Model 32B Rollacoater was installed to operate in a production line consisting of the coater, drying ovens, and a printer for wood graining the parts. The coater was used to apply both prime and finish coats of lacquer.

Results: According to Superintendent, Walter J. Soltys, the number of rejects is running an average of 2 out of 700 Pieces or about 0.28%. Mr. Aaron Newman, Plant Manager, estimates that in approximately a five month period the savings inherent in this finishing operation equalled the cost of the rollercoating installation. Newman also reports that the finish obtained is more uniform and smoother than alternative methods. As a result of Colony's successful experience with rollercoating in the Linden plant, the company has converted to the same method in its original plant at Little Rock, Arkansas.

Perhaps you can make similar savings and get better finishing too by using Gasway equipment. Why not call us in today. We'll be glad to discuss your finishing problem with you.

Gasway CORPORATION

6463 North Ravenswood Ave.
Chicago 26, Illinois

SEND FOR COMPLETE FACT FILE ON ROLLACOATING

LOOK TO GASWAY FOR EFFICIENT HIGH PRODUCTION COATING OF STRIP, SHEET OR PANELS

ber; you can omit expensive operations like bleaching or staining. It is applied directly on the wood, giving a surface coating with little or no penetration. A percentage of it is picked up by the top coats, causing a cloudy or hazy effect, depending on the top coat material used.

As for durability, its enemies are many. For example, when nail polish, alcohol, etc., are spilled and wiped off, they are likely to take not only the surface coatings but the color too.

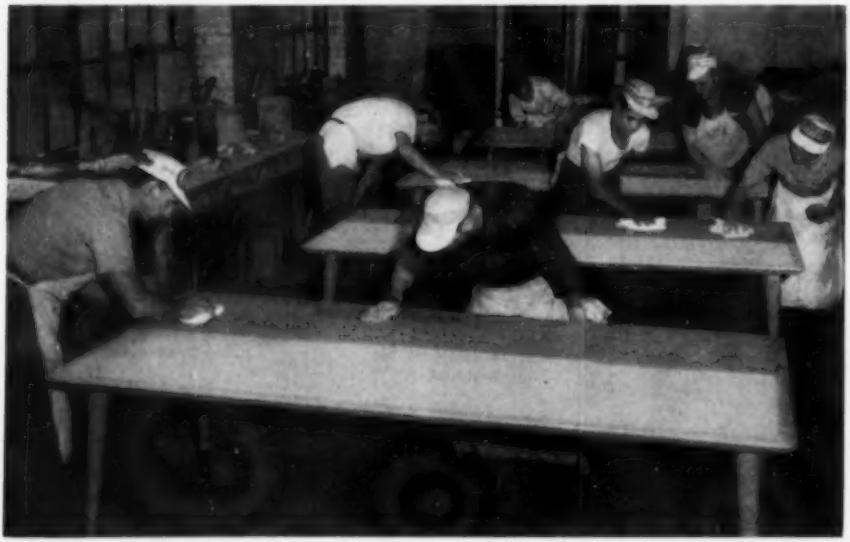
When this finish is scratched, dented or bumped, you will often see the natural wood. In normal wear you will notice that on sharp edges and corners your color will start to wear away, leaving the natural wood exposed.

Opacity of this material is the cause for the loss of the fine textured beauty of the wood, plus depth of color. To maintain this type of furniture, when wear appears, nearly always involves high expense—usually a refinishing job.

These materials were first introduced on the market to fulfill needs resulting from the use of poor lumber, production increases, competitive prices and, in some cases, to obtain colors that could not be produced by stains. I sincerely feel that this type of finish, by comparison, cannot be classed as a durable quality finish.

When purchasing materials or manufactured items, remember that there is no one who can sell for a lot less without skimping somewhere—and there are no substitutes for satisfied customers.

Sap staining is an operation that is seldom publicized, either for the lack of know-how, or due to the



Staining and filling operation on a typical library table. These tables are first inspected in the white to catch any imperfections that might have been overlooked in the cabinet room.

Clean up fast

with "LIQUID ENVELOPE"

the original, firesafe, strippable Spray-Booth Coating

Spray-booth cleaning costs are at rock-bottom when you spray walls with "LIQUID ENVELOPE". Over-spray peels off in a jiffy, cutting heavy over-time and wasteful "downtime".

"LIQUID ENVELOPE" opaque white pigment improves illumination. Contains no toxic chlorinated solvents. Will not corrode walls or ducts. Dry film will not burn or support combustion.

New Users: Order 5-gallon test sample at drum-lot price from nearest dealer.

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introduction of colored sealers and shading lacquers which will accomplish the evening-up process, but with certain reservations. Shading lacquers, in the hands of inexperienced sprayers will cause serious problems. Walnut and oak are two of the most common woods we think of when we hear any mention of sap streaks or extreme variations in wood coloration—which are more prominent when natural or dark finishes are required.

As the items are set up for brush or spray staining, all light areas should be stained first, before the overall staining is done. After the wash coat and filling operations, any remaining color variation can be overcome by sap staining on the filler. This is done by diluting or strengthening the original stain. The addition of a small quantity of denatured alcohol will help the penetration. Sap stain is applied with a soft hair brush and wiped with a rag to remove the excess. This stain over the filler will give you a true color picture of your end results.

Film Shrinkage; To Find What Is Causing It

When film shrinkage occurs the first thought, by those without practical experience, is that the lacquer may be the source of the trouble. But it also can be a combination of poor application, from cabinet shop to the final finishing.

Filler should be padded well into the pores of the wood by a circular motion. A good grade of wiping tow is suitable; it is the closest thing to sea grass (a hemp product). The preliminary wiping off and padding in of filler should not be done until the filler has flash dried.

At times, due to certain characteristics of some oak, it will be necessary to repeat the filling operation. Perhaps you have heard of "double filling". The sealer coat is then applied, followed by the top coat materials.

If any signs of film shrinkage show after the top coats are dry, take a sample panel and finish it, following the exact procedure but using a different sealer. The results of this test will tell you if the shrinkage is due to your sealer hold-out or your top coat materials.

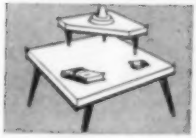
Touching-up and burning-in operations. This is done between the first and the second coats to eliminate the minor imperfections such as sap or mineral marks. At no time will any extensive damage or imperfections pass this point.

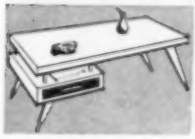
If your materials are not purchased ready for use, and if they have to be reduced, this mixing should be done by one experienced person—or properly supervised by a well-qualified individual. A glue sizing before the final sanding in the cabinet shop will be of help in finishing open-grained woods.

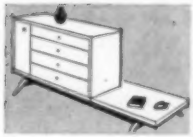
[*Continued on page 68*]

Perlite...

a Modern Finish For Modern Colors in Furniture . . . . .







If you are making blond or light-colored furniture such as novelty tables, case goods, kitchen cabinets or bedroom furniture, you will like PERLITE—the Perfection *Air Dry Conversion* Finish.

With PERLITE you get the advantages of a force-dry finish without any investment in drying equipment.

You also get better build (one coat equals 2 coats of lacquer), color retention superior to water-white lacquer . . . . good resistance to alcohol and water . . . . No print with over-night dry at normal room temperature.

If you manufacture any of the above (or any other furniture) we invite your inquiry.

PERFECTION

PAINT AND COLOR COMPANY

INDIANAPOLIS 2, INDIANA

The finished product will look like this librarian's charging desk when complete. Then it goes to the fitting department and is again inspected before shipment. This particular unit can be disassembled into smaller sections for relocation or rearrangement.

Sources of Trouble: Colored Wiping Rags; Stencil Ink

Good wiping rags in a finishing room are an important finishing aid. In the final wiping of filler I would advise you to avoid using colored rags because some dyes become active when they come into contact with solvents. This can be a costly experience and the harm will not be noticeable until the lacquer is applied.

An item used by most manufacturers in the shipping room can cause trouble if handled carelessly. Coal tar in stenciling ink, if it penetrates the wrapping, will cause a yellow color to appear on the lacquered surfaces. Usually this can be removed by either of the three following methods, without damage to the finish.

1) Rubbing with compound and lubricant—creating friction heat—will bring it to the surface.

2) Wipe the surface carefully with a rag made wet in a 28% solution of acetic acid.

3) Make a paste, using Fuller's earth and 100% by volume of peroxide, cut 50% with water. Placing a quantity of this on the damaged area should bleach out the discoloration.

Before continuing with this series of articles, I would appreciate any comments and questions on problems which are at the present time creating difficulties. My next article will cover the highlights of laboratory top coatings and resistance, the repair of wood imperfections, and the importance of proper supervision of personnel.

Four huge 27' long KIRK & BLUM ovens assure efficient dehydration of air conditioning units at WESTINGHOUSE ELECTRIC CO., Staunton, Virginia.

The ovens are steam heated to 300° F., re-circulating, automatically controlled. Galvanized steel construction resists moisture action. Thick fiberglass insulation minimizes heat loss. There is no external ductwork, except exhaust stacks through roof.

Large console cooling units can be accommodated, since the automatically operated vertical oven doors are 5′ x 8′.

For every oven need, consult KIRK & BLUM. Write for new "Ovens for Industry" catalog. The Kirk & Blum Mfg. Co., 3131 Forrer St., Cincinnati 9, Ohio.

KIRK & BLUM

OVENS FOR INDUSTRY

EDITORIALS

Have You Considered Urethane Coatings?

★ A new type of vehicle for the paint industry does not come out too often. When it does it generally takes a number of years for it to be fully evaluated, and for its advantages and disadvantages to be widely known. A type of coating that will undoubtedly get considerable publicity in the next few years is the urethanes. Urethanes are formed by the reacting of isocyanates with polyesters. In the United States, polyurethane foams are well known and are expected to increase their market considerably in the future.

Urethane coatings have been used fairly extensively for specialized uses in Germany in recent years, and are now being pushed in this country. These coatings are not cheap, but they have some desirable properties such as good gloss, toughness, excellent hardness, good electrical properties, lack of toxicity, and resistance to chemicals, salt, weather, moisture and heat.

They are recommended for such uses as spar varnishes, floor varnishes, magnet wire enamels and paints for chemical and food processing plants. They seem to be especially suited when a clear coating that must withstand weather is wanted. The coatings can be air dried or baked. The film properties can vary from brittle to soft and tacky, depending on the exact formulation. The air dried coatings are generally two component systems with a limited pot life when mixed.

As with any material, the urethanes have their disadvantages. Further research, development and improvements in formulating may eliminate or minimize the disadvantages. In seeking markets in the coatings field, urethanes will have to compete with other coating materials that are well established. It is by no means certain how large or small a share of the market they will capture. However, they do seem to have enough desirable properties to establish themselves for specialized uses. We shall hear more about urethane coatings in the near future.—*Eugene Goldstein.*

Know What to Do in Case a Fire Starts

★ Despite the frequency of fires many companies are still poorly prepared to fight one. Apparently they feel that it won't happen to them—or they do not realize that they are so poorly prepared. The weakness is not so much in lack of fire fighting equipment or alarm systems (although such shortages are common) as in the *ignorance of the workers regarding what action to take in case of fire.* [*Continued on page 74*]

★ *Guest Editorial . . . Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate thought on a live subject. The Editor welcomes guest editorials and pays for those used.*

Filtering ADDS Profit TO YOUR Paint Wash Water Booth Operation

Delpark Paint Spray Booth Filters

Filter the overspray from your wash water system and you'll increase your profit by reducing operating costs. Paint overspray is automatically removed from the wash water by periodic filtration cycles. Paint particles cannot foul the water jets, settle to the bottom of the tank or cause undue wear of the pump and recirculating system. Down time of the booth for cleaning and maintenance is eliminated, maintenance labor is released for other duties and productive time of the booth is increased. Pigments are more easily reclaimed adding even more to the savings.

Here is loss that can be converted to profit with Delpark filtration. Delpark field engineers will give you complete facts on these money saving, profit making Delpark Filters for Paint Spray Booth Wash Water. Write today for more complete information.

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. . . FIRST in Filtration Advancements

Backed by more than 40 years experience in Industrial Filtration

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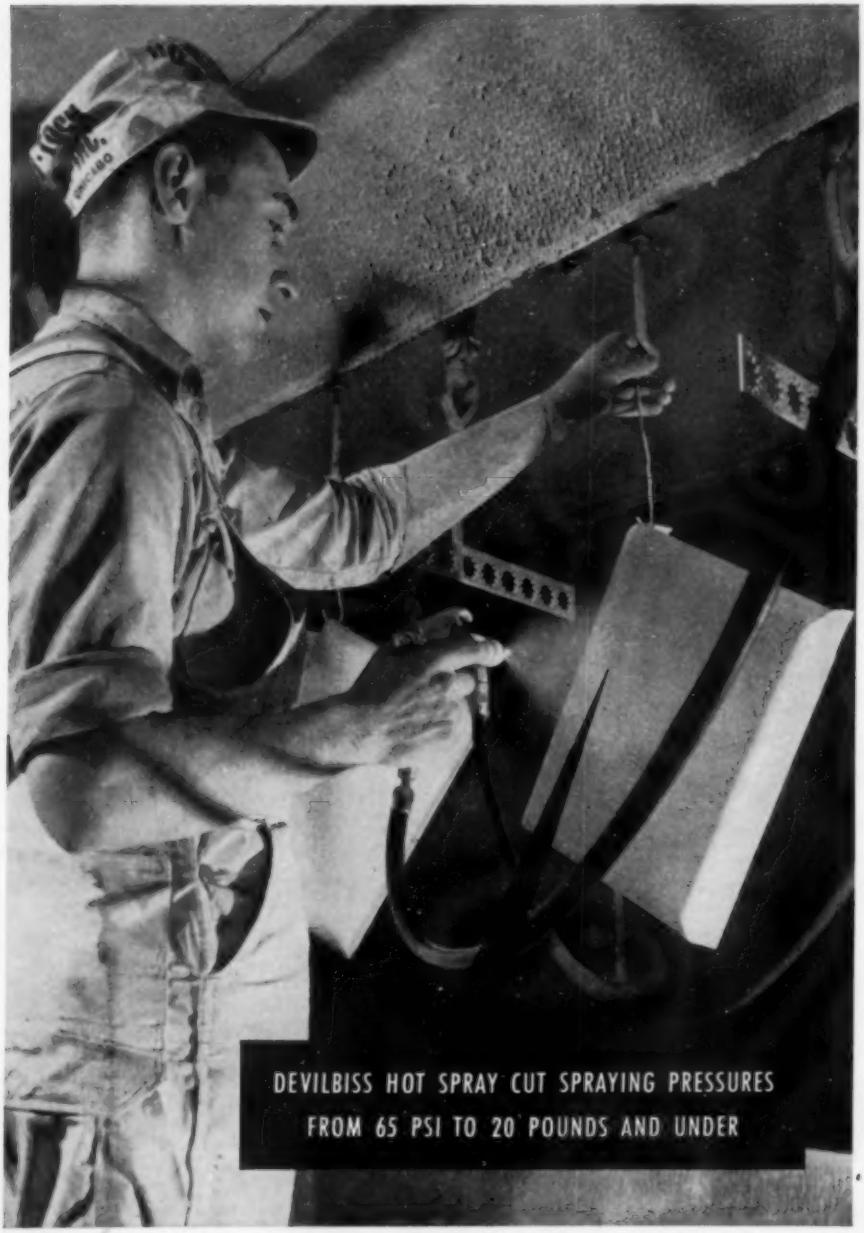
DEVILBISS HOT SPRAY CUT SPRAYING PRESSURES
FROM 65 PSI TO 20 POUNDS AND UNDER

Erwin Prust, Alwin Mfg. Co., points out the benefits of low-pressure spray, and how . . .

"We save 55 gallons of paint a week with DeVilbiss hot spray"

The Alwin Manufacturing Co., Green Bay, Wisconsin, manufactures custom dispensers for the paper and soap industries, as well as metal stampings of several kinds. About 90% of their products are painted before shipping.

States Mr. Erwin Prust, secretary-treasurer, and purchasing agent for the company: "By changing to the DeVilbiss hot-spray method, and using DeVilbiss spray booths and spray guns, we reduced paint consumption 25% (about 55 gallons per week), decreased drying time by as much as 40%, and reduced cleanup time from 4 to 1½ hours. More than this, we can now spray between 60 to 90 pieces per hour, as compared to 30 to 60 under the old system!

"One big reason for these savings and advantages is that with the DeVilbiss hot-spray system, we were able to lower the air pressure from 65 psi to 20 pounds and under. This eliminated most of the overspray losses we had experienced in the past, thereby reducing our paint consumption."

Why not find out how DeVilbiss hot spray can help you in your operations? Call your nearest DeVilbiss representative today!

THE DEVILBISS COMPANY
Toledo 1, Ohio
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FOR BETTER SERVICE, BUY
DEVILBISS

The DeVilbiss booth permits units to pass through on an overhead conveyor; allows painters to spray each unit without removing it from hooks.

DeVilbiss hot-spray system keeps paint hot right up to the gun, assuring uniform viscosity at all times.

Workers making or using industrial finishes, which are generally quite flammable, should certainly know what to do in case a fire starts. Often, however, they have a very meager knowledge, not only of what should be done if a fire starts, but of what *precautions to take to prevent a fire from starting in the first place.*

I recall a discussion about fires in a plant I was visiting. One of the employees was asked what he was supposed to do in case of fire. He replied that he would grab a fire extinguisher and use it to put out the fire. That was the limit of his preparation. He hadn't thought of what to do if fellow workers already had all the extinguishers in use.

No one in the plant had been told to shut windows (to prevent oxygen from reaching the fire) or to remove valuable records in case of fire. They didn't have an alarm system set up so that everyone would know when a fire had started. There never had been any kind of fire drill or demonstration of how to use a fire extinguisher.

Many men think they know how to operate an extinguisher because they knew how ten years ago. In an emergency, however, they would fumble a bit before they actually could get it going. In short, this plant was poorly prepared for a fire. Since the personnel seemed generally ignorant of such subjects as flash point and grounding of solvent containers, it is not inconceivable that they might have a fire. The results could be disastrous.

It doesn't take much time or expense to have the personnel in your plant informed so that they will know how to prevent a fire—and what to do in case one does start. A little instruction may some day save your plant.—*Carl Hobardo.*

Service; Customers; I'll Tell You a Story

★ Can a paint company ever give too much service? Is it possible to stand unwavering behind one's product and still end up with a profit? Is that old slogan, "the customer is always right", a sound business philosophy or will such a policy inevitably lead to ruin? Is the paint business too complicated and too competitive to depend on either the fairness or the gratitude of the customer? All I know is what I see.

During World War II there were two young lads—one a salesman, one a chemist—working for a long established and apparently successful industrial paint company. Now, this company had built a fine business on the principle of service and quality when, unfortunately, the founder died. As so often happens, the heirs had their own ideas about such things, with the result that the business began to go downhill.

Sensing the inevitable, our two friends decided to depart and set up their own business. Using mostly borrowed capital, they started what was probably the smallest paint company in the world.

The future did not look promising; however the boys did have some ideas. One was that they should advertise just like the big companies. In fact, they spent every penny that the could spare to make their name familiar to the buying public.

The second idea was that everything in their tiny plant should be set up to produce paints with a minimum of delay or error. The chemist was a nut about cleanliness and order.

He also evolved a system of pigment pastes that was compatible with 90% of normal needs, enabling them to process most orders immediately, with a minimum inventory of colors.

[*Continued on page 78*]

You Can BY-PASS EXPENSIVE EQUIPMENT *and* LABOR COSTS

HIGH EQUIPMENT INVESTMENT → PHOSTEEM SAVINGS

by USING THE NEW ECONOMICAL

"Phosteem" PROCESS

or HIGH LABOR COSTS!

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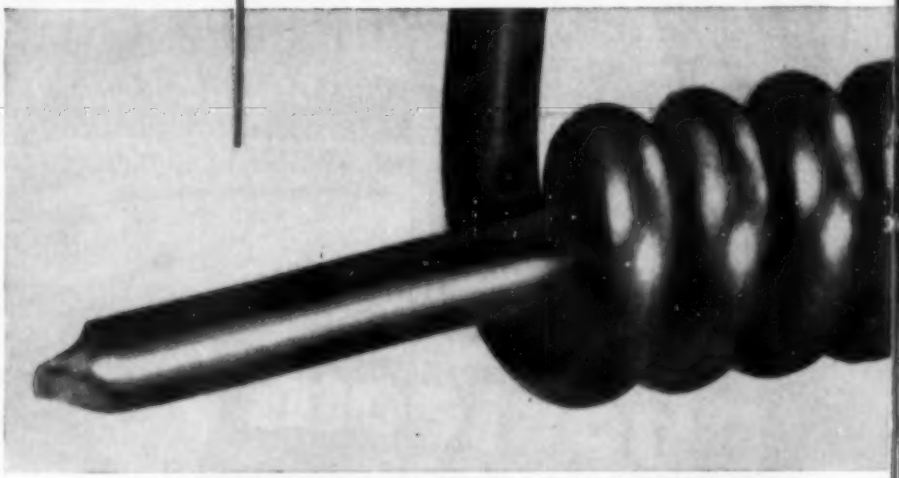
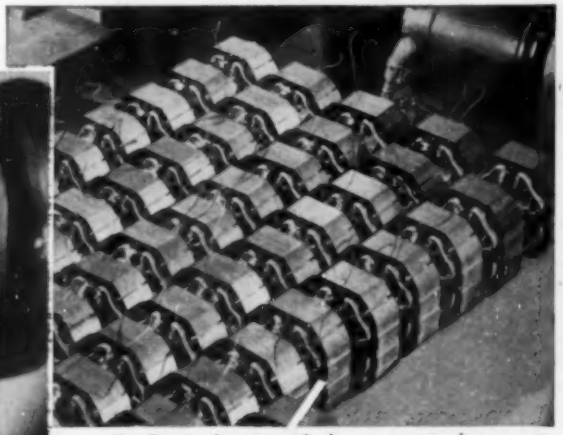


Magnified coil of magnet wire demonstrates exceptional retained flexibility of Du Pont "Lecton" Acrylic Resin Wire Enamel. This remarkable insulating finish is effective even after exposure to heat (125°C.) for 900 hours, and can withstand the bending of wire around its own diameter.

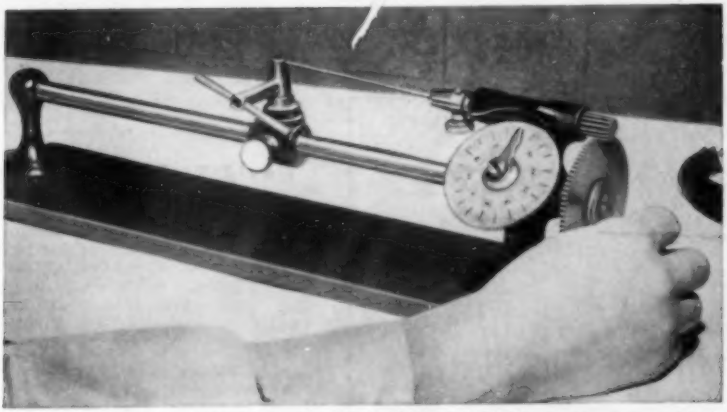
Wire enamel winds up without letdown

The Du Pont family of wire enamels are used today wherever there is electricity . . . wherever there's need for a thoroughly dependable insulating finish to help put electricity to work. Each of the wire enamels is engineered to do a specific job especially well . . . to resist the harmful effects of abrasion, moisture, heat, oils, refrigerants and solvents.

Whether you need a wire enamel to meet special conditions, a chemically inert dry lubricant coating like TEFLON, an outstanding high-bake white enamel like DULUX or a furniture finish like DUCO, Du Pont's experience with a wide range of industrial finishes can help you improve or develop a product —cut production costs. Today, more than 12,000 Du Pont Finish formulas are serving industry. For further information write: E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington 98, Delaware.



Du Pont wire enamel gives copper wire an unbroken insulating film that's extra-durable, resists harmful effects of heat and many chemicals.



Twist test is an example of control designed to measure flexibility and adhesion of wire enamel. All Du Pont Finishes are pre-tested to insure maximum performance . . . highest quality.

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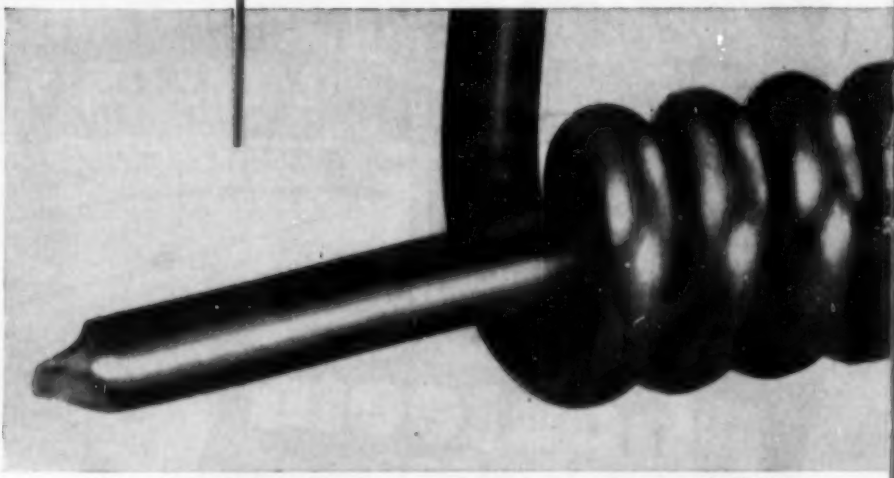

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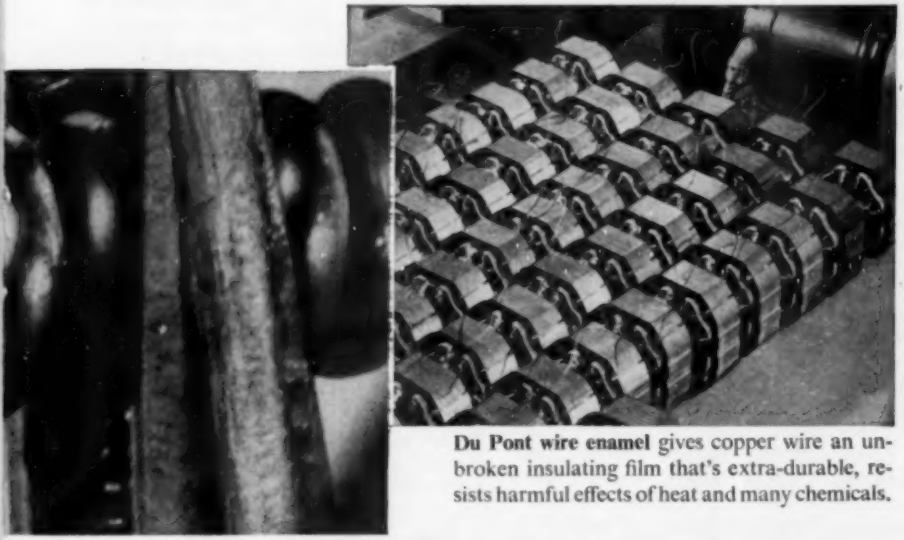

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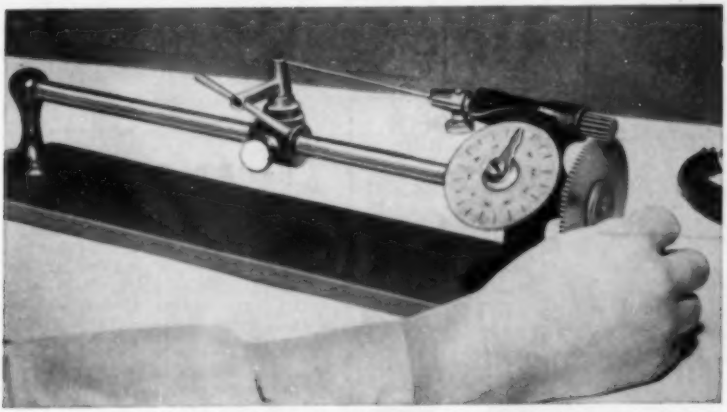

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The third idea was that they would accept every single bit of business they could get and would guarantee unconditionally every thing they sold, without question. They would also make any delivery demanded by the customer. Kind of naive, yes.

The first year was mighty tough. Many times they had to pick up raw material to process an order. Sometimes the partners would work all night to get an order ready for a morning shipment. However, the word was getting around that here was a company that gave service. It was the only place around where a small user could call in the morning and get a miserable gallon of enamel in the afternoon.

Even the big buyers learned that here they could obtain small orders for special colors which their regular suppliers were reluctant or unable to supply promptly. Yes, the boys would even service an order four or five times to get just the right shade or sheen. And, all of this without a murmer of protest. Little customers became big customers; small orders got bigger and bigger.

The advertising helped too. Buyers became so familiar with the name they forgot that it had appeared only recently. Even customers who visited their plant were so impressed by the orderliness, efficiency and uncluttered floors that they failed to realize how small it was. Others were sold on the company by its sincere effort to be of service — practiced by management and employees alike.

The boys did not go bankrupt. In fact, a couple of years ago they built a new plant! It was still no giant as paint plants go, but it was another marvel of efficient design; and their office building was a thing of beauty, inside and out.

Last year they wrote another chapter to their success story. It is a bit ironical—perhaps even a little sad. They bought out their former employer, lock, stock and barrel. That seems to be the answer.—*Ken MacKenzie.*

"Talk about costly and time consuming stripping methods! When she starts taking off her jacket, labor's at a standstill around here."

David Busker Joins Ciba Co.

The Ciba Co., Inc., New York City (Plastics Division, Kimberton, Pa.) announces appointment of David Busker as Supervisor of Coatings' Customer Service. Ciba Company, well known for its structural epoxy resins, has expanded its facilities to include the protective coatings field.

Mr. Busker had been associated with other manufacturers of finishing materials, the most recent having been with a concern in Newark, N. J., as Industrial Research Chemist.

An author of several technical articles for Plastics Encyclopedia and Product Engineering, Mr. Busker has also been instrumental in the promulgation of government specifications for lacquer, wood sealer, stain and filler.

He is a member of the N. Y. Paint & Varnish Production Club, American Chemical Society and the Society of Gallows Birds.

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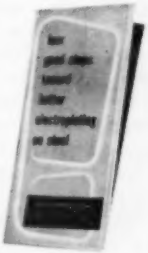
How can cleaning costs be reduced 33% while cleaning quality is being improved? *See pages 7 and 8 of booklet.*

What are four easy ways to improve the average rinse tank? *See page 10.*

What causes hydrogen embrittlement during electrocleaning? What is the remedy? *See pages 15 and 16.*



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OAKITE

QUESTIONS and ANSWERS

Spraying Bullet-Shaped Reflectors

We are having difficulty spraying some modern light reflectors. The reflectors having various shapes, but mainly are bullet-shaped and have anything from a few small holes around the circumference to wide slots along the whole bullet. We are spraying the inside of the bullet first and are then troubled by overspray from the outside coming through the holes when we spray the outside coat.

On another type of reflector, where our customer wants a transparent finish on the outside, we find difficulty in avoiding overspray on the outside when we spray the inside white. It is too risky trying to wipe the white off the outside of the bullet before the outside coat is sprayed, as the outside is highly polished and our cleaning might leave a slightly different finish on the highly polished aluminum. Masks that we have tried have been unsuitable because the bullets vary in diameter, sometime by as much as ¼-inch, due to variations in spinning. *S. E. Mfg. Co., Melbourne, Australia.*

Try modern spray methods, and I believe you will find your oversrpay problems will be licked—and in addition you will use less paint and will increase production.

The reflector you are spraying is shaped like a bullet. To paint the inside of this reflector you are breaking up or atomizing the paint with compressed air.

You are holding the nozzle of the spray gun over the open end of the reflector, pulling back the spray gun trigger and blowing a mixture of paint and compressed air inside the reflector.

The reflector is filled with free air before you attempt to spray, and when you force compressed air into it you are naturally going to compress the free air at the bottom of the bullet-shaped reflector, and your atomized paint will bounce off this compressed air, resulting in no paint at the bottom of the reflector.

If there are slots in the reflector, the air has a chance to escape; also these slots afford avenues of escape for the compressed or atomizing air from the spray gun which is shooting atomized paint through the slots.

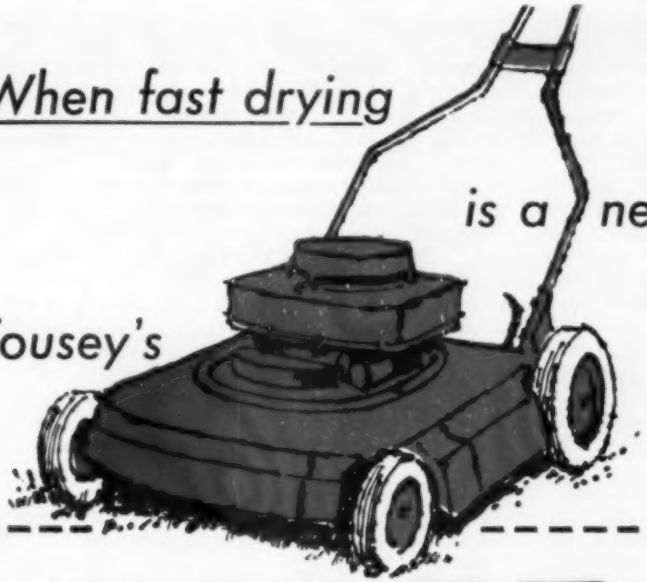
The higher the pressure used on the spray gun the greater will be the volume of air (carrying paint) through the slots. The higher the pressure used, the greater will be the loss of solvent from the outside of each atomized paint particle; and after the paint particles have been forced through the slots into the free air and permitted to settle on the outside of the reflector, the solvents trapped inside each particle of paint will bleed to the surface, wetting down each particle and adhering to the bare metal.

The use of less compressed air will result in less paint rebound from the surface of the work, and less paint will be carried through the slots. Stop using the old fashioned nozzle, that demands high pressure. I suggest material nozzle No. 161-187 and air cap 161-190, or its equivalent. If you are using the old fashioned syphon or gravity method of getting paint to

When fast drying

is a necessity.

Tousey's



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the gun, I suggest you change over to pressure spraying.

Material pressure should be adjusted to deliver the desired film when the reflector has rotated three times, probably between 4 to 6-lbs. pressure at the spray gun.

To adjust your atomizing pressure hold the nozzle of the spray gun 8-in. from a panel. Snap the spray gun trigger. Around the edge of the fan pattern obtained on the panel, note the atomized particles; they should be about even in size and evenly spaced. If you have large and small particles, your atomizing pressure is too low. Slowly raise your pressure until the particles are uniform in size; that, then, will be the correct pressure to use.

If you connect a gauge at the spray gun you will probably find your air pressure 28 to 30-lbs. Allowing for a pressure drop due to air passing through the spray gun, your spraying pressure at the nozzle will be between 24 and 28-lbs. This low pressure will deposit more paint on the inside of the reflector and less through the openings.

The position of the spray gun is the step. Let us imagine the reflector opening, or the end at which you hold the gun, is the face of a clock. You hold the nozzle of the gun at an angle of 45° above this opening, at 6 o'clock, and pointing directly at 12 o'clock. Now, do not turn the nozzle or swing the gun, but move the spray gun to the right until the nozzle is above 5 o'clock and pointing at 1 o'clock.

Rotate the reflector as fast of possible and pull back the trigger of the spray gun. Check the finish obtained.

If the finish is uneven, the 45° angle should be changed slightly or it may be advisable to move the gun over to 4:30 o'clock and pointing at 2 o'clock. This position will push out the free air from the reflector in a rotary movement and the paint will follow this air movement, depositing itself on the inside of the reflector and not bounce off of the free air that is in the reflector.

Check the outside of the reflector. If the overspray is not completely eliminated, adjust your exhaust so that you can obtain about a 200-ft. air movement across the back of the reflector from 3 o'clock to 11 o'clock.

Do not block off the normal spray booth exhaust; just be sure your spray booth exhaust is not creating a partial vacuum behind the reflector, between 10 and 2 o'clock. In other words, baffle this air movement to obtain exhaust between 3 and 11 o'clock on the reflector to pick up and carry away the overspray. — *W. Beacham.*

Objects such as you describe are quite commonly sprayed without any difficulty. This type of article is sprayed by the thousands on automatic machines, without ever a trace of overspray. Hand spraying requires only care and the proper procedure.

The outside should be sprayed first, regardless of the type of finish. There will always be overspray caught by the inside.

The inside should be sprayed last, covering the overspray caught when the outside was sprayed.

The inside should be sprayed in the following manner: The piece should be mounted and revolving, with the inside up and tilted slightly toward the sprayer. The sprayer should aim for the farthest inside surface, spraying directly at the slots. When the slots are hit at an angle, overspray will deposit on the outside. Naturally, the spraying should be toward the exhaust fan.

I suggest a small spray-gun with a pressure pot for getting in close on the inside, with a minimum of fluid or air pressure. The air blast should be as little as possible.

I would mount the pieces as I have

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described. Spray the outside; then do the inside immediately and transfer them to drying racks for baking or air-drying. In fact, there is no need to do them singly. Five to ten pieces can be lined up across the front of the booth and sprayed one after the other.

In case your sprayers are unable to spray so accurately, here is one other suggestion: Do the outside with a baking enamel and bake. Then the inside can be sprayed and any overspray on the outside can be removed safely with solvent.—*George Conrad.*

Finishing Mahogany

In the February 1957 issue of this magazine, in an article entitled "1957 Furniture Show", you have an illustration of a chest, with words describing it as having an "oiled walnut, hand rubbed finish". Also, on page 68 you mention, "Nordic open-pore dry finish of medium brown tone (Scandinavian oiled walnut)".

We are writing to ask whether you can give us any information as to the materials used and the process followed to secure the above-mentioned finishes. Also, as our basic material here is solid mahogany, how the above process should be altered to secure a medium brown tone on mahogany, which would entail some method of killing the pinkish-red natural tone of this wood.

We have tried to secure an open-pore finish of this type on mahogany by using a slightly greenish NGR stain, followed by light coats of sealer and flat lacquer, but the stain fails to color the pores, and these show up a good deal lighter than the rest of the finish.

Our equipment here includes a pallet-type conveyor system with three spray booths and a controlled humidity drying oven. Our labor costs are somewhat lower than in the U. S., and consequently we are able to do more hand operations such as rubbing, but we would still like to keep this at a minimum.—*V. B., Hamburgo 40, Mexico.*

Some manufacturers are using oils and waxes of different types to achieve a finish. Although such finishes are beautiful, they fail to have many of the properties demanded by the buyers, who want a finish that will withstand moisture, liquor and normal abuse.

Oil or wax finishes can be nearly duplicated in appearance by using materials common to the furniture industry. Many who try to do this, make the mistake of not using enough material, and in so doing they lose considerable depth in the finish. A wash coat of 7% solids should be used after the stain. The sealer should be 10% to 12% solids, and two top coats of 21% lacquer should be used. All materials should be slow drying to allow for good flowing.

Your trouble with the pores being too light in color must be corrected by applying a material that can be wiped into the grain of the wood to give the desired color. This may be a thin filler (4 to 6-lbs. to a gallon of naphtha), a pigmented wiping stain or a glaze. Apply this material over a sanded wash coat and wipe the surface clean while wet. This will leave the color in the pores without a filling effect.

The theory of using green to neutralize the red in mahogany is correct but in practice it doesn't lend itself to good color control.

The two most common methods of obtaining a good light to medium brown mahogany are as follows:

1) Bleach; allow to dry; sand; stain with NGR stain to the desired color.

2) Apply a pigmented ground coat of the desired color. The type of ma-

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YOUNG BROTHERS COMPANY

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terial I have in mind is relatively new and is used in place of stain to get nearly any base color on any wood. The material does not leave a painted appearance, but rather it gives the appearance of stain. The use of this material would eliminate the bleach.

The lacquer used for top coats should be 20 to 30 sheen. The rubbing procedure must be such that the sheen remains as low as possible.—*C.M.T.*

A Cheap Finish For Gum Plywood Panels

We want to finish some small gum plywood panels, size 9x11-in., in a walnut or mahogany finish, using the fastest, cheapest method possible. This finish does not have to be a superior one. We are mostly interested in depth and smoothness with no rubbing of the top coat.

We have in mind applying a stain-filler-sealer combination for the first coat, and rolling or flow coating a coat of flat or semi-flat varnish for the top coat. Is it practical to roll or flow coat varnish? We want to stay away from spraying if possible.—*H.R.W.*

You indicate that you prefer to use varnish as a top coat for the gum panels. You will not or cannot spray. You want depth of color and a smooth appearing finish.

To get depth you must get some color into the wood. Since gum is a close-grain wood, filling can be eliminated by having the panels sanded with No. 6/0 abrasive paper before finishing. I would then suggest the following:

1) Dip in pigmented stain; wipe and dry.
2) Dip in varnish; allow to dry.
3) Dip in varnish; allow to dry.

It might be necessary to tint the first varnish dip to get the effect you want, but the last or top coat should be clear and flat.

Such things as depth and smoothness are relative. How good a finish do you want? Perhaps one coat of varnish is enough.—*J.E.S.*

I have taken this up with a couple of labs and if your precise words are followed, it's a tough job. You want a finish that is cheap, yet you want "depth and smoothness". Frankly I do not believe this is possible. Just prior to this you say that the finish does not have to be superior.

Striking a middle course, I have been unable to find anyone who has found a stain-filler-sealer combination successful. There is really no such thing. All that it is is a stain-filler with lots of vehicle, and the sealing powers are questionable.

If you want a cheap finish I suggest that you omit the filler on gum, sand well in the white, and apply a tinted sealer, either walnut or mahogany color; allow it to dry; sand and roller coat a varnish which should be semi-gloss. This will not require rubbing. In this particular case, flow coating of the top varnish coat is not recommended.—*R.I.D.*

My only experience with any finish even similar to this is one that we use on the interior of drawers, First, we give the surface a spray coat of high solids lacquer or synthetic sealer tinted to the color desired. After one hour of drying time we sand the surface smooth with No. 180 sandpaper. We blow the surface free from dust with an air gun and coat with semi-gloss or flat conversion varnish. When this varnish is cured you have a smooth, deep finish.—*C. E. Horne.*

You can use the flow coating method or run the panels on a small roller or belt conveyor and let them pass

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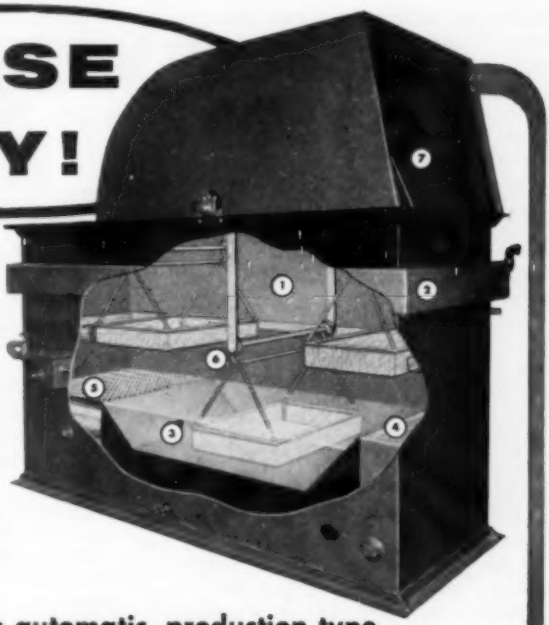

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under an automatic spray gun. However, I believe that by roller coating you can save more material.

I suggest that you get in contact with one of the several companies that manufacture roller coating machines (who advertise in *Industrial Finishing*) and let them demonstrate their machines and help you work out a process for finishing your panels. You will want to work with your supplier of finishing materials also.

The system you have worked out whereby you use a stain-filler-sealer combination prime coat and a high solids semi-flat lacquer or varnish is about as cheap a finish as any you can use.

If you want to save labor I suggest that you install a gravity or power-driven roller conveyor at the end of the first or prime coating machine to convey the panels through a hot box or oven to dry them. This would eliminate your having to put the panels in a rack for drying.

If you will be doing this type of finishing for some time I suggest the following:

1) Feed panels into stain-sealer (pigmented, non-grain-raising stain with sealer). Panels would travel from coating machine onto a gravity or power feed roller conveyor which would carry them through a drying oven.

2) From the drying oven the panels would travel under a cooling fan and then under a revolving sanding machine similar to a small drum sander, but this machine would have an abrasive coated fiber cover on the drum instead of sandpaper.

3) From the sanding operation the panels would be automaticaly fed into a second or top-coat roller coating machine on which heat conversion varnish(urea resin type) would be used.

The panels would emerge from the roller coating machine onto a second roller conveyor and then travel through a drying oven until they were dry. Then the panels could be taken off the conveyor and packed for shipment.—*H. W. Chester.*

Hot Rolled Finish; No Sanding

We use pigmentel lacquer basecoats in our finishing process, and recently heard of a method of eliminating sanding between coats by rolling a heated roller over the base-coated parts.

We would appreciate any information available on this hot roller method, as well as the names of suppliers of this equipment.—*B. F. Furn. Co.*

I have taken up your inquiry with a recognized authority on wood finishing systems, especially on plywood. He tells me that he once heard of a method which could be similar to what you have in mind.

Several years ago he seems to recall that a man by the name of Clifford T. McElroy of the Roymac Co. in Los Angeles, installed heated roller equipment such as you are asking about. He obtained a sizable contract with a plywood company and turned out some of the panels. The contract was concelled later and it is not known whether or not the method was at fault or for some other reason.

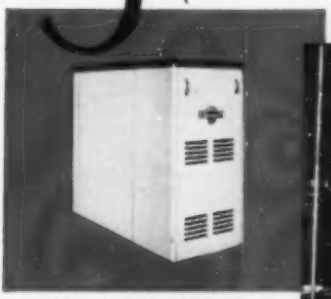
At any rate, the method evidently did not make a noticeable splash in the industry. As far as is known today it is not being used.

I fail to see too much advantage in eliminating sanding between coats, with all of the modern power sanding equipment such as we have seen described in previous articles here.

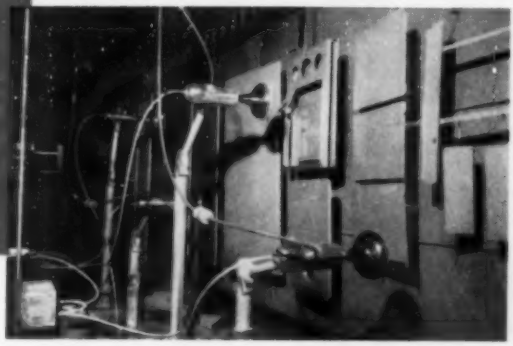
Some of the more progressive manufacturers of sandpaper, abrasive cloth and equipment for machine sanding can solve your sanding prob-

[*Continued on page 92*]

3 times as many Furnace Casings per gallon of paint with RANSBURG NO. 2 PROCESS!



This La Bay model, Series 6000, is typical of the Waterman-Waterbury line of winter air conditioners now painted electrostatically.



Quality of work is improved; Labor costs are cut and Production Stepped up 150% with

RANSBURG *Electrostatic Spray Painting*

Results exceeded expectations when Waterman-Waterbury, Minneapolis, modernized their finishing department and went from hand spray to Ransburg No. 2 Process in painting their quality line of heating and air conditioning equipment.

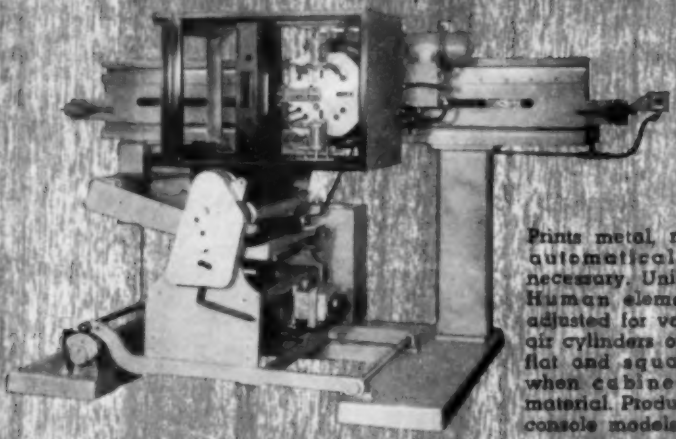
By the former hand spray method, W-W used a half gallon of paint to coat a single casing. Now, with Ransburg No. 2, they get SIX CASINGS PER GALLON . . . or 3 times as many per gallon. Furnace casings, as well as other painted parts which go into the famous Waterbury Furnaces, now get a uniform coating of .8-mil.

Production was increased, too, as automatic painting enabled them to step up the conveyor speed from 7 fpm to 11½ fpm. Where they formerly turned out a complete furnace in five minutes, NOW they assemble three in just six minutes . . . an increase of 150%. All in all, they figure the modernization program—with Electro-Coating—saved over $11,000 in the first three months of operation.

NO REASON WHY YOU CAN'T DO IT TOO!

Whatever you paint, we'd like to tell you more about the efficiencies and worthwhile savings which can be yours with Ransburg Electro-Coating Processes. Get our No. 2 Process brochure which cites many on-the-job examples of electrostatic spray painting on a wide variety of products. Or, we'll be happy to loan you our new film, "The Big Attraction" which tells the electrostatic spray painting story in sound and full color. Call or write

RANSBURG
Electro-Coating Corp.
Barth and Sanders, Indianapolis 7, Indiana



Prints metal, masonite or wood cabinets automatically. No jigs, no fixtures necessary. Uniform printing, no misprints. Human element eliminated. Quickly adjusted for various sizes. Cabinet held by air cylinders on inside, assuring a perfect, flat and square printing surface even when cabinets are made of thinnest material. Production-2 per minute on large, console models.

Wood

This machine is built in various sizes from the narrowest up to 98" wide, for the graining of various sizes and thicknesses of panels, tables and similar work. Can also be used for edge graining. Explosion-proof motor is mounted beneath a solid base, eliminating fire hazards.

This trademark SCHMUTZ recognized as builders of fine printing machinery since 1923.

This trademark is known not only in this country, but throughout the world for modern and highest quality printing machinery. Now manufacturing more than 60 different types and models.

VISIT OUR PLANT, SEE THE MACHINES UNDER CONSTRUCTION AND DOING ACTUAL WORK ON OUR TEST FLOOR.

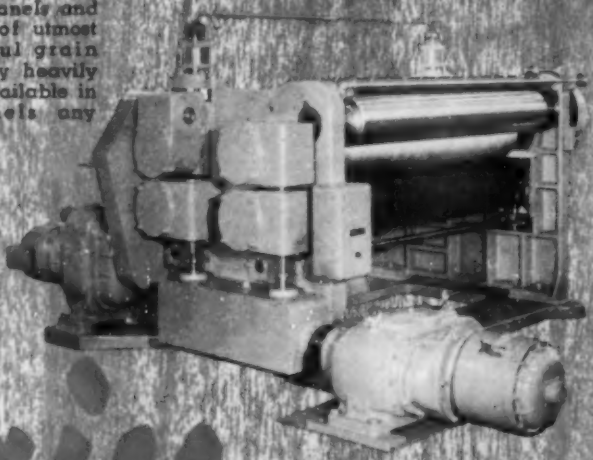
SCHMUTZ MFG. CO.

1600 W. MAIN ST.

LOUISVILLE 3, KY.

U. S. A.

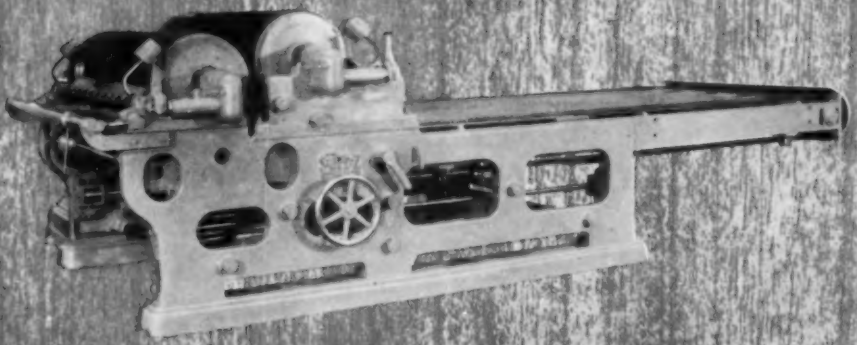
Reverse Roll Coater for eliminating imperfections in hardboard panels and other sheet material, which is of utmost importance in securing beautiful grain effects. These machines are very heavily and accurately built and are available in two sizes for 36" and 48" panels any length and up to 2" thick.



Grain

REPRODUCING EQUIPMENT

This large, heavy duty machine has been especially designed for printing unusually beautiful grain effects on large panels. Panels are automatically fed through the machine so that perfect registration of design can be had. Machine carries two sizes of engraved cylinders: 10" diameter for straight grain and 20" diameter where design of wood is such that repeating is objectionable. Standard size machines will handle panels 36", 48" and 84" wide, up to 12' long and from the thinnest to 2" thick.



lem in a hurry. The sanding operation is just another step in a long production line, and the sanding dust is automatically blown off and up the exhaust stack before the wood enters the next roller coater.—*P. C. Bardin.*

I have never heard of this method. I am sure that if this were used it would require a special formulated material because if a roller hot enough to melt the material were used, it would perhaps damage ordinary lacquer sealers or base coats.

Also, this method would work better on metal surfaces because they are smoother than wood surfaces.

To use the above mentioned method would also require much more than the ordinary thickness of film, it seems to me.—*H.W.C.*

Paint Protection on A 12-Year Test

GRAPHIC evidence of the value of a good paint job on glued laminated timbers was recently brought to light as a result of long-range outdoor exposure tests conducted by the U. S. Forest Products Laboratory at Madison, Wis.

Two laminated timbers, one painted and the other unpainted, were exposed to the elements for 12 years. In that time, the destructive action of sun, rain, cold and ice seriously split the unprotected timber, while the painted one remained practically free of such deterioration.

The two timbers, cut from a larger one of laminated Douglas fir, were identical in every detail when exposed, except that one had been given two coats of white lead paint before exposure, and was subsequently repainted twice.

The laminated timbers are included in a series that the Laboratory has been testing for years. They were put outdoors at the mercy of Madison's variable climate. Laboratory scientists inspect them periodically and record the amount of deterioration that has taken place.

After 12 years of severe outdoor exposure at Madison, Wis., an unpainted laminated timber tested by the U. S. Forest Products Laboratory, showed serious checking and splitting, while an identical painted one was practically free from deterioration.

The results of the Laboratory's continuing research are utilized by the laminating industry of this country, which is currently producing about 75 million board feet of laminated lumber a year.

John Vogel Representative for Stanley Chemical Co.

John C. Vogel has been named a sales representative for The Stanley Chemical Co., a subsidiary of The Stanley Works located in East Berlin, Conn.

Mr. Vogel will represent Stanley Chemical in its northern New Jersey territory. He joined the company in 1951 as a chemist and has also been employed as a technical service representative on industrial finishes. For the past several months he has had extensive training in the company's chemical sales program.

PERFORMANCE TESTED!

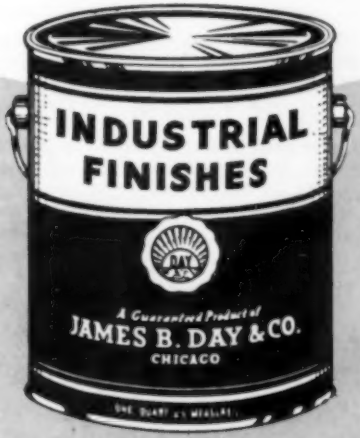
for Enduring Beauty

Dayco industrial finishes

For more than half a century, we have been serving the leaders in a wide variety of industrial fields, with the fine finishes that save time and money on production and add the attractive appearance that sells. We have or will produce for you, the special finishes economical production and enduring beauty calls for. We are specialists in:

- Clear and colored Lacquers
- Primers
- Surfacers
- Baking Enamels
- Screening Materials (Lacquers-vinyls-synthetics)
- Handle Finishes
- Removers
- Undercoaters
- Stains

FINE FINISHES SINCE 1906



Write us about your needs

JAMES B. DAY & COMPANY

1872 Clybourn Avenue • Chicago 14, Illinois

LETTERS from READERS

Gold Finish for Art

We are looking for a gold finish which has the appearance of vacuum plating. The only thing we know about it is that it is sprayed, perhaps hot. The first coat is a heavy mat finish. Then a coat of silver and ? water mixed in a special type of spray gun. Then a lacquer or finish coat, which makes it a gold-colored finish. We know this sounds very vague but it's all we have. This finish has been used on plastic casts, plastic trim for wooden shadow boxes and toy guns.—*Modern Art.*

We are not sure which manufacturer's finish you have in mind. In a letter we are giving you names and addresses of several concerns that can supply excellent gold finishes.—*Ed.*

Sealer For Pine Prevents Acid Bleed Through

In the Questions and Answers in February issue, page 98, an inquiry from the Newport News Shipbuilding & Dry Dock Co. asks for a sealer for Idaho White Pine that will prevent any acid bleed of the wood from coming up through the finish.

We have developed a finish that is radically different from any coating we have ever encountered and is intended for this particular purpose. It has the best sealing qualities and acid bleed prventativ qualities of any product we know of, and we would appreciate your passing this information along to the individual in the above named compaany, or give us his name aand we will communicate with him direct.

I should add that the product is a two-component deal involving a catalyst. It is a clear material and dries very rapidly and can be coated over with any conventional finishing material of an air-drying type.—*W. P. Fuller & Co., San Francisco.*

Thank you for this information. In a letter we are giving you the department number, address and name of the individual who signed the letter. —*Editor.*

Flow Coating Equipment

We noticed in the March issue that you have a list of suppliers of flow coating machines. Would you send it to us?—*R.S.Co.*

Yes, in a letter we are naming several concerns that design, manufacture and install flow coating machines.—*Editor.*

Paint Drum Heater

Recently I saw an advertisement for a wrap around heater, one for 5-gallon drums and one for 55-gallon drums. I cannot remember the publication where this article appeared.

I have a customer who could use such a heater, and if you possibly know the manufacturer of this type

Cleaning Specialists*

* [SPE'CIAL·IST—One who devotes himself to some special branch of activity.]

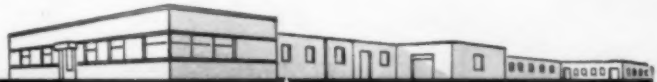
At Northwest our "special branch of activity" is solving your cleaning problems.

Behind your friendly, competent Northwest Sales Engineer stands a reputation for providing industry with low-cost, analytically-correct, job-adjusted chemical cleaners.

From Northwest's years of experience in formulating the RIGHT cleaner for your specific needs have come such developments as the LO-HI pH PROCESS—for cleaning prior to plating, painting, or vitreous enameling; ALKALUME PROCESS—for preparing aluminum and magnesium for finishing and spot welding; INTERLOX PROCESS—for phosphate coating; SPRA-LUBE—to control over-spray of "today's" paints in water wash paint booths; PAINT STRIPPERS—specific to your needs; SUPER-DRAW & FLUID FILM—for drawing metals.

Remember—YOUR COST PER FINISHED ARTICLE IS THE TRUE COST OF YOUR CLEANER.

Northwest's production-tested chemicals and "Right the first time" recommendations will save you money. Northwest Service is as close as your phone.



NORTHWEST CHEMICAL CO.

9310 ROSELAWN DETROIT 4, MICH.

pioneers in pH cleaning control *serving you since '32*

"You sure this Chlorothene solvent is safe, Chet?"

"Jess, that's one thing I'm *real* sure of."

"Well, I didn't want to be the first to find out."

"You aren't. Almost everyone knows Chlorothene® is the safe, effective cold cleaning solvent. You can use it for spray, dip, wipe or bucket cleaning."

"I was afraid it might be the kind that catches fire."

"Can't. Unlike petroleum solvents, it has no flash or fire point."

"How about toxicity?"

"It's a low toxicity solvent, too. Has an MAC rating of 500 ppm. In fact, our Safety Engineer recommended it."

"Guess that takes care of the safety angle."

"Yes, and Chlorothene really takes care of the cleaning angle, too. It's high in solvent power and evaporates fast."

"Say, Chet, did you invent this stuff?"

"Nope. Dow developed it."

"Who?"

"Dow. The Dow Chemical Company, Midland, Michigan. You know, the company that makes the complete line of chlorinated solvents—Dow Trichloroethylene and Dow Perchloroethylene Industrial for vapor degreasing, and Dow Methylene Chloride for stripping and cleaning metals. Why don't you write them for the whole story?"

YOU CAN DEPEND ON DOW

heater, would you please send the firm's name to me?—*J. O., K. Pt. & Color Co.*

One manufacturer and supplier is Edwin L. Wiegand Co., 7500 Thomas Blvd., Pittsburgh 8, Penna.

"This guy's background for conveyor design must've come from an amusement park."

Solvent Resistant Finish

We are now using cellulose lacquer for color coding our resistors. The shell material is a mineral-filled phenolic. The present process involves rolling the bands on with big striping wheels, and drying about 20 seconds before handling.

The lacquer presently used gives trouble in some cases, because it can be washed off with alcohol, trichlorethylene or similar solvents. We are looking for a solvent-resistant finish that might be used in one of the following ways:

1) Substituted for the present colored lacquers.

2) Used as a transparent coating over the present lacquers to protect them.

A short baking time at a heat not exceeding 300° F. is considered possible but undesirable. High gloss and brilliant colors are desirable.

Can you suggest a suitable material, and a source where it might be obtained? Quantities average about 30 gallons per year in each of 12 colors.—*S. Resistor Div'n.*

We are naming, in a letter, several finish manufacturers, any one of which can probably supply a material to meet your requirements.—*Editor.*

Two Color Hammer, Wrinkle For Dipping?

Is there any paint manufacturer who can supply a two-color or hammer or wrinkle finish for metal parts that can be dipped? After the parts are dipped they will be baked, and the parts, of course, will be cleaned before dipping. We would appreciate information regarding this problem. —*M.F.P.*

We question whether there is a 2-color finish that can be applied by dipping. Does any reader know of this being done successfully in production?—*Editor.*

Rust Preventative

Can you refer us to an inexpensive rust preventative solution which may be applied to rough castings of either iron or steel, so that these castings could be stored outside for a period of six months without rusting? This solution should be of such a nature that it could be applied quickly and inexpensively, such as by means of a spray gun and yet not interfere with a subsequent cleaning of these castings at a later date which consists of grinding wheels, abrasive discs, or

You Protect Your Reputation When You Protect and Beautify Your Product With

NIKOLAS

Fixture Illustration Courtesy H. A. Framburg & Co.

QUALITY FINISHES

The Choice of Leading Finishers and Manufacturers

SINCE 1890

With Nikolas Industrial Finishes, you can be assured of Quality Products with Guaranteed Uniformity. High solids, Low viscosity produce additional coverage that can actually show savings compared to finishes selling for 50% less. Why jeopardize your reputation with inferior finishes when the finest cost no more?

CLEAR METAL & WOOD LACQUERS • LACQUER ENAMELS
SYNTHETIC COATINGS (Baked or Air Dry—Clear Transparent Colors or Enamels)
NOVELTY FINISHES

For Information, Samples and Recommendations, Write, Wire or Call!

NIKOLAS
SINCE 1890

G. J. NIKOLAS & CO., Inc.

2850 WASHINGTON BLVD., BELLWOOD, ILL.

35 GRAND ST., BROOKLYN, N. Y.

sanding belts and then applying a prime coat of paint. Therefore this solution should not clog up grinding wheels or abrasive discs and yet it should not have to be removed by some other solvent which would necessitate an additional operation.

We would appreciate any suggestions you might have as to possible solutions we could experiment with, or various suppliers we might contact.—*F.J.S. Corp.*

In a letter we are naming several concerns that offer rust-proofing compounds, but anything that will give protection to castings stored outside for six months may not be so easy to remove—not without some kind of rather severe cleaning operation.—*Editor.*

"It's my new nozzle for spraying checkered patterns."

Finishing Equipment

We are interested in the following and wish you would recommend manufacturers and suppliers, and forward information to us: 1) Spray booths in water wash and dry; 2) Dipping tanks; 3) Graining machines; 4) Conveyor systems.—*T.C.C., Honolulu, Hawaii.*

In a letter we are submitting names and addresses of several manufacturers of each type of equipment named. —*Editor.*

I.F. in Far Places

We read with great interest the "write-up" you gave us (in Nov. issue, page 46) about our new Testing Laboratory here in Sydney, N.S.W., Australia.

I am sure you will be interested to know that two other Sydney business men commented on the article to me and I feel equally sure that many others noticed it because your publication is widely read in Australia. —*D.H.B. Adams, Director, Ransburg Electrostatic Coating Processes., Sidney, N.S.W., Australia.*

Thank you Mr. Adams.—*Editor.*

Flock and Flock Coating Equipment Wanted

We are interested in the purchase of flock, of a length of 1/32 and 1/16-in. in order to manufacture suede or chamois material which can be washed or dry cleaned.

We also are interested in the manufacture of velvet or chamois finished paper—in the printing of designs and patterns on cloth, paper, metal, "vinylite plastics," wood, etc.

Could you send us illustrated catalogs and literature on all the application of electrostatically flocked material in U.S.A., price, application and delivery term particulars, as well as other relevant data?

Bond TACK CLOTH

PACKED IN ROLLS OR IN BULK
JUST THE WAY YOU WANT IT!

A SPECK-FREE FINISH EVERY TIME—Stays Soft and Tacky—*Now available in white or gold—in Three Different Types of Cloth.*

There's a big difference in TACK-CLOTHS—that's why BOND processes three different meshes of cloth with several types of formulations to give you the cloth that best "fits" your special needs. You can get BOND TACK CLOTH packed just the way that suits you best, too—in 150 yard Rolls of 36" wide cloth or in handy Cartons.

No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up.

ALL BOND TACK CLOTH is Spontaneous Combustion Proof, Lint-Free and Wax-Free. Gives a sparkling speck-free finish every time. Clean and Sanitary. No waste.

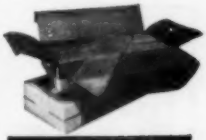
TRY THEM AND COMPARE RESULTS. Samples gladly sent upon request.

A WARRANTY OF SATISFACTION IN EVERY CARTON

Bond® *"The Tacky Wiper Specialist"*
CHEMICAL PRODUCTS CO.
2641 N. Clybourn Ave., Chicago 14, Ill.

IN ROLLS

Cut off any size piece as needed.



IN BULK

Size is 18" x 56"—folded to 4-½ x 18" for ease of handling. Cut and folded—ready to use.

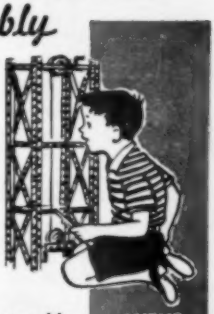
Also Individually Packed in Glassine Envelopes — 144 to the carton.

BUILD INFRA-RED OVENS

As Easy as Erector Set Assembly

with driQuik

INTERLOCKING SECTIONS



These pre-engineered sections are completely wired, with easy-to-assemble structural parts for permanent or mobile ovens. Or, if you prefer, we will build ovens to your specifications.

LOW INITIAL COST either way and maintenance costs are practically zero because these units have ceramic type generators and there are no bulbs or sockets to burn out. DARK BURNING—NO high intensity light injurious to eyes. Write today for literature giving complete data.

OVENS ANY SIZE OR SHAPE

driQuik DIVISION
DRY CLIME LAMP CORP.
GREENSBURG, INDIANA

Finally, could you recommend producers of flock adhesives of different descriptions and of machinery for working flock?—*L. T., Buenos Aires, Argentina, S. A.*

In a letter we are naming several companies to whom you might write for the specific information you want. —*Editor.*

". . . . so his doctor told him to paint his tonsils . . . .".

Graining Equipment

We want to obtain the following walnut grain roller tools: 1) 15-in. width and 24-in. in length; 6-in. width and 18-in. in length; 3-in. in width and 18-in. in length.

Any information you can furnish as to a source of supply for these items will be appreciated—*W.Co.*

In a letter we are naming several possible sources of supply for graining rollers and graining equipment. —*Editor.*

Brushable Liquid Neoprene

We noted an article in February 1957 issue, on page 6, under the caption, "Brushable Liquid Neoprene". We are interested in obtaining literature, relative to this product, and its price, and would appreciate the name and address of the manufacturer.—*C.Foundry Co.*

It's E. I. duPont deNemours & Co., Elastomers Division, Wilmington 98, Delaware.—*Editor.*

Paint Sludge Recovery

Would you please furnish us with a list of people who make a business of recovering paint from sludge? We are urgently in need of this.—*E. Inc.*

In a letter we are naming six concerns which are in this business—*Ed.*

Lacquer Sticks; Where?

Please send me the name and address of a supplier of "lacquer sticks", used by cabinet and furniture manufacturers for retouching walnut, mahogany and natural lacquered finishes.—*B.B.H., Mexico.*

Try Star Chemical Co., 2619, S. Ervay St., Dallas, Texas.—*Editor.*

Tumbling Barrels

As a manufacturer's agent specializing in finishing equipment and systems, I feel the need for a good line of tumbling barrels for organic finishing.—*Finishing Equipment Co.*

In a letter we are giving you names and addresses of several manufacturers of tumbling barrels.—*Editor.*

Functional Finishes!

If you require your coatings to accomplish some specific task — something beyond mere ornamental appearance or average longevity . . .

We make ACRYLIC, ALKYD, CELLULOSIC and VINYLOID coatings for a very wide range of specialized industrial applications.

TRY US!

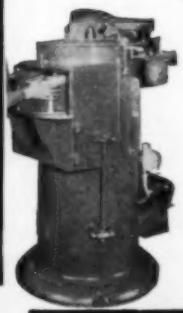
• **THE VARNISH PRODUCTS COMPANY**

5206 Harvard Avenue, Cleveland 5, Ohio

RONCI SPEEDIP WHIRL ENAMELER

Made in Three Sizes, R-100, R-200 and R-300. Capacities 312-cu.in. to 4400-cu.in.

IDEAL FOR LACQUERING AND ENAMELING PARTS UP TO 20 INCHES IN LENGTH



CUTS COSTS, SAVES UP TO 80% OF MATERIAL

Carries up to hundreds of lbs. per load, and up to 30 loads per hour can be coated with lacquer or enamel in these machines.

All operations are within the machine. Dipping tank is raised, submerging the parts in the basket, and then lowered and the parts whirled, throwing off excess material. No additional outside tanks required; no cleaning necessary when changing colors; no loss of material.

Prompt Deliveries

Write for further information and submit samples to be coated.

RONCI MACHINE COMPANY

A Division of F. Ronci Co., Inc.

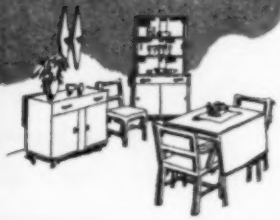
2 ATLANTIC BOULEVARD CENTREDALE 11, R. I.

America's finest furniture

IS FINISHED ON A DE BURGH

CONVEYORIZED SYSTEM

CRADDOCK FURNITURE CORPORATION



The practical considerations of a finishing system are effectively answered in a DeBurgh system.

The flexible DeBurgh Finishing System has been designed by a furniture manufacturer. All the advantages a conveyorized finishing system can offer, plus money savings, are yours in a DeBurgh Finishing System. No wonder finer furniture finishing is done on a DeBurgh System.

Phone, wire, write

DESIGNING | ENGINEERING
BUILDING | INSTALLING

Complete Finishing System for . . . Wood and Metal Products • Automobiles • Farm and Industrial Machinery • Major Appliances • Flow Coating • Spraying

GEORGE KOCH SONS, INC.
EVANSVILLE 4, INDIANA
CHICAGO DETROIT

ROCKFORD VARNISH

R/V

ROCKFORD, ILLINOIS

MANUFACTURERS OF PROTECTIVE
AND DECORATIVE FINISHES

LOOK, FELLOWS...

"It's just *great* to be sitting here, cool and comfortable, and looking up at that grand old R/V trademark. But don't *you* just sit there and look at it. No, sir, you *do* something about it! You call those fine people up and you say, 'Hustle over here, will you please? We want to talk to you.' Then you ask them anything you want about industrial finishing materials — and you *listen* to what they say, because they have a heap of years of good experience . . . Give them a call real soon, will you? Thanks, fellows!"

Have You Considered Dip Coating?

THE APPLICATION of paints and lacquers by the dipping process can be a good method of coating parts and products without too great a labor expense. This is particularly so where automatic or semi-automatic dipping machines are in service. Contrary to many preconceived notions, quality results can be obtained if simple care is exercised in the process.

The biggest faults in dipping occur when the parts are immersed and withdrawn rapidly. This rapid movement of parts in the tank causes agitation of the liquid which, in turn, produces air bubbles or pockets, streaking and extra large tear drop accumulations.

One manufacturer of painted steel rules dips the parts in white enamel for the background color prior to the printing operation. His automatic machine lifts the parts from the enamel at the rate of one foot per minute. For many people, this rate of withdrawal may seem to be too slow — so slow that it slows up production. However, a tank large enough to accommodate many pieces at one time, and an exceedingly low rate of rejects, compensates adequately for this objection.

The production rate of these steel rules is still greater than any spray operation (both sides are coated) and the resulting quality of coating is not diminished in any way.

Sometimes it may be advisable to not relegate dipping to the "just to throw

We deliver . . .
HIGH QUALITY
SYNTHETIC ENAMELS
at low cost
When low cost is your target, you don't have to sacrifice quality to hit the mark. Synthetic enamels from STANLEY will meet your every requirement for appearance and performance . . . and cost you less!
If quality and cost deserve equal consideration, investigate how STANLEY technicians — young in ideas, old in experience — can custom-formulate a synthetic enamel that will do the finishing job you require . . . economically.
Write for this free file folder with data sheet on Low Cost Industrial Baking Systems.
PLASTISOLUTIONS
STANLEY CHEMICAL COMPANY*
Subsidiary of The Stanley Works
DEPT. D, 1338 BERLIN STREET, EAST BERLIN, CONN.
*Member, Vinyl Dispersions Division, S.P.I.
STANLEY
See Stanley first for finishes that last
LACQUERS • SYNTHETICS
VINYLS • ENAMELS
STANLEY TOOLS • STANLEY HARDWARE • STANLEY ELECTRIC TOOLS

some paint on" class, but to consider it as a possible means of putting on a smooth coating of near uniform film thickness—and doing a good quality job.

It goes without saying, of course, that *the enamel or lacquer used for dip coating should be formulated for the dipping operation,* and not be just a thinned down version of a spray material. Your supplier's representative can be of valuable assistance to any customers who plan to establish a dip coated operation.

A well engineered and designed process setup may be a means of reducing costs, particularly in a highly competitive field. A manufacturer might do well to investigate the possibilities and modern facilities for dip coating.—*N. I. Gaynes.*

Wet Spots Showed In Final Finish

RECENTLY AN EPIDEMIC of "wet spots" in the finish was evident in one of the furniture factories.

No foreign matter could be seen on the wood before it was finished and the spots did not appear until after the sealer coat was dry. The spots did not dry—and no amount of forced drying seemed to do any good.

The mill room and cabinet room were scoured in a search for wax or or oil. Nothing of this kind could be found.

The mill room superintendent finally found the culprit. It was rosin from pine that had been processed. Scrap pieces had been used to "cross stick" the furniture panel stock and the rosin from this pine had penetrated into the oak veneer to such a depth that ordinary sanding would not remove it.—*S.M.*

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Facts to consider when you're buying

Chromate Conversion Coatings

for Corrosion Protection, Paint Base, Decorative Finishing

WHAT IS IRIDITE®?

Briefly, Iridite is the tradename for a specialized line of chromate conversion finishes. They are generally applied by dip, some by brush or spray, at or near room temperature, with automatic equipment or manual finishing facilities. During application, a chemical reaction occurs that produces a thin (.00002″ max.) gel-like, complex chromate film of a nonporous nature on the surface of the metal. This film is an integral part of the metal itself, thus cannot flake, chip or peel. No special equipment, exhaust systems or specially trained personnel are required.

If your company is manufacturing or buying parts or complete assemblies made from or plated with any of the more common non-ferrous metals—zinc, cadmium, aluminum, magnesium, silver, copper, brass or bronze—you've probably already run up against the question of finishing these surfaces with a chromate conversion coating. These coatings are used to protect against corrosion, or to provide a base for paint or to provide a decorative finish for sales appeal or shelf life. Since chromate conversion coatings represent a relatively new means of obtaining these finishes, this digest of facts to consider may be of value to you.

1. THE COATINGS THEMSELVES. There are many brands on the market. All are similar in many ways. Each, of course, offers its own specific advantages and these may relate to operating techniques, performance under actual use conditions, cost, availability, etc. Naturally, you'll want to choose a coating that is widely known and accepted under both military and civilian specifications.

2. THE COMPANY BEHIND THE PRODUCT. Is it a reliable, established organization? Does it offer experienced technical service, both from the field-engineering organization as well as the home office and laboratories? The man who sells and services your installation should be thoroughly familiar with not only chromate conversion coatings and their applications, but also with the characteristics and performance of related finishing operations such as pre-cleaning, electroplating, painting, etc. This is most important since all steps of the finishing cycle must be functioning

properly for the satisfactory performance of the ultimate finish produced.

3. AVAILABILITY OF THE PRODUCT. Ideally, of course, the material should be readily available to you from nearby warehouses to avoid time loss in long distance shipping and to provide emergency service, should the need arise.

4. COST. Naturally, the initial price of the material is important to you. However, just as you consider ultimate cost when you are buying mechanical equipment, ultimate cost must be considered for these finishing chemicals. So, it will pay you to investigate consumption costs, labor costs and the other factors which go into the determination of ultimate cost. Further, cost alone gives no indication of product performance, so careful attention must be given to the purpose the finish must serve and the value that finish will add to your product.

5. FACILITIES FOR RESEARCH AND DEVELOPMENT. Perhaps the existing types of chromate conversion coatings do not include a compound that will accomplish exactly what you wish. Then, it is important to deal with a supplier who has adequate research and development facilities available to work with you to produce a material to meet your needs. Naturally, such a project is seldom completed overnight. But, with complete cooperation and confidence from both you and your supplier, chances are a satisfactory program can be completed.

These are the concepts of sales and service on which we, Allied Research Products, Incorporated, have developed and marketed the line of Iridite chromate conversion coatings . . . superior product performance, complete sales and technical service, easy product availability, economical cost, extensive research and development facilities. No doubt you are familiar with our line and have seen this trademark—

IRIDITE®

—in our advertising, technical literature or on shipping containers in your plant. Remember this trademark when you're buying or investigating chromate conversion coatings for your company. It's your assurance of quality, economical products from a reliable and established company, skilled sales and technical service from both our home office and a national network of representatives, immediate availability from warehouses in strategic industrial areas and our willingness to work with you to develop new finishes to meet your needs, should the present line fall short.

For complete information on Iridite chromate conversion coatings, write today for your free copy of our technical data file. Or, for immediate advice, call in your Allied Field Engineer. He's listed under "Plating Supplies" in your classified telephone book.

ALLIED RESEARCH PRODUCTS
INCORPORATED
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Manufacturers of Iridite chromate conversion coatings for corrosion resistance, paint systems, final finishing of non-ferrous metals; ARP Plating Brightener & Chemicals.
West Coast Licensee—L. H. Butcher Co.

Chromium; Zinc Chromate and . . .

THE WORLD SITUATION and increased international tensions must indeed cause many people concerned with finishing and finishing problems to stop and remember the difficulties in obtaining certain materials during emergency periods. One need not have "the memory of an elephant", for in the past decade and a half the two conflagrations—World War II and the Korean "Police" action—gave ample evidence of material procurement headaches.

Chromium is a gray white metal whose uses are most widely recognized as the bright shiny trim on the present day automobiles. However, aside from its decorative value, it finds tremendous basic value as an alloying element to go with iron to produce stainless and mchine tool steels. As a hard deposit on cutting tools (its hardness approaching that of diamonds) it is invaluable. With these most important applications, particularly during time of national emergency, the allocations for other purposes such as finishing products and processes are sure to be curtailed.

The occurrence in nature of chromium ore, chiefly as chromite or ferrous chromite, is in not easily accessible geographical locations, namely Southern Rhodesia (South Africa), New Caledonia, India and Asia Minor. It can easily be appreciated that availabilities of chrome ore will be limited.

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are familiar with the most common type of chrome pigment—zinc chromate. This pigment in primers, particularly in Government specification types, is a widely used standard corrosion protection material.

The oxides and hydroxides of chromium are more familiar to paint manufacturers than to the finishers in their uses as the yellow and green pigments which impart permanence, stability and brightness to lacquers and enamels. More recently another chrome compound — this time with copper—has made its appearance and probably will be used extensively in the anti-fouling paints.

Many industrial finishers have, at one time or another, used the proprietary products based on chrome as conversion coatings and pretreatments prior to paint application. These are particularly important in finishing the light metals of aluminum, magnesium, and zinc.

It is interesting to know the basic materials such as chromium and the uses and applications to which they are put, particularly in finishing, but in the light of recent events on the international scene it is certainly of "bread and butter" importance to the industrial finisher to know more of these basic materials and their impact on the finishing scene.—*G. Norman.*

Nat'l. Furniture Design Show

The April Spring Furniture Market will be held in Chicago from April 22 to April 27. It will be called the National Furniture Design Show and will be held concurrently at the two largest furniture marketing buildings in the world, The American Furniture Mart and the Merchandise Mart. General Whiting points out that it is not a design show in the accepted sense of displaying sketches of things to come. "It is a market", he declares, "at which for the first time in the Spring, more than 400 new lines will be shown."

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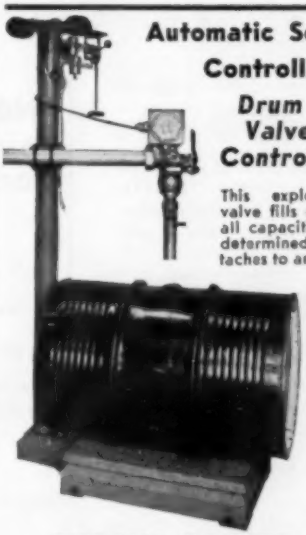

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Further details and prices on request.

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Use Metallic Powders? Good Mixing Needed

SEVERAL PAINT manufacturers now offer aluminum and bronze type finishes in a stabilized ready-mixed material which will show little if any variation over a reasonable period of storage time. Of course, we still have finishers of the old school who prefer the former method of mixing their own powders in a clear vehicle. Their purchases are in a two package system, sometimes with each one obtained from a different supplier.

Reasons cited for continuing the two package system are mainly based on uniformity of results, yet surprisingly enough the only uniformity achieved is its non-uniformity. Besides taking the time of valuable skilled labor it usually works out that each operator responsible for the mixing has his own ideas and methods.

Most pigment dispersions must be mixed into the heavy vehicle portion of the paint first, and then thinner is added. Additions of thinner directly to these dispersions may cause a pigment shock condition, whereby the pigment particles will tend to separate from their previously dispersed condition, leaving a sandpaper-like material.

Metallic powders and pastes, however, are not the same as pigment dispersions. No previous grinding is necessary for the metallic pigments; only good mechanical stirring or agitation. Aluminums and other metallics are best prepared by thoroughly mixing them with the

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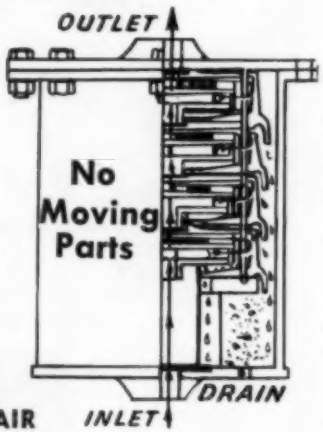

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thinner that will eventually go into the clear vehicle. When the powder or paste has been completely broken up and a smooth mixture has been produced, it can then be added to the liquid.

Additions of metallic pigments directly to the vehicle may give the same or a similar effect as pigment dispersions added to thinner. In either situation, much unmixed material will settle on the bottom of the container and rough finishes will be produced.

There is another hazard in connection with the independent mixing of metallic powders. Very rarely will the exact amounts be measured (preferably by weight) for mixing. This is probably the greatest cause for variations in gloss. As the concentration of metallic pigment is increased, the gloss of the product is decreased. In this independent mixing there always seems to be a tendency to put in too much pigment. Result: flatness.—*N. I. Gaynes.*

Illinois Bronze Powder Forms Industrial Finishing Dept.

The Illinois Bronze Powder Co., Chicago, announces the formation of an industrial finishing department for the purpose of meeting the metallic finishing needs of industrial manufacturers.

As one of the country's oldest manufacturers of bronze powders, commercial and industrial aluminum and metallic paints, Illinois Bronze Powder Co. has developed a complete line of metallic finishes which provide a smooth and extremely durable finish and meet other requirements for industrial use. Among the colors available are bright gold, antique gold, karat gold, copper, brass, chrome-type aluminums, anodized aluminums and platinum silver.

These finishes may be applied by dip, flow, roller, spray or brush, and are suitable for air-dry, forced dry, or baked method of drying.

Inquiries should be directed to the Industrial Finishing Division of Illinois Bronze Powder Co., 2023 S. Clark St., Chicago 16, Illinois.

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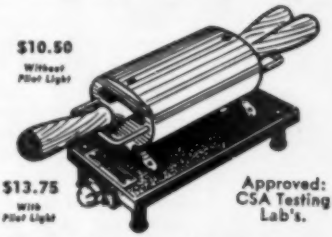

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Flock Finishing

ONE OF THE MOST interesting phases of industrial finishing is the application of textile type materials over a base adhesive coat. This process is most commonly known as flock finishing. There is much to be found in published literature regarding equipment and methods of procedure, but regardless of these reams of information, one can find every flock coating installation differing from one to the other in varying degrees.

The use of base materials (adhesives) is another instance where no set principles are followed. For example, one may find ordinary baking enamels, air dry enamels, varnishes and lacquers being employed. In the case of lacquers, special formulations with extremely slow solvent evaporation and retained tackiness must be ordered. Otherwise the rapid drying of an ordinary lacquer would not afford sufficient time to apply the flocking top coat to a tacky surface.

The application of the base coat, regardless of which adhesive is used, is standard practice only in the individual plant. Some operators like to thin or reduce the material and spray or brush a wet coat on the surfaces to be finished. Because most solvents or reducers have a relatively high speed of evaporation, as compared to the solids in the coating, the period of tackiness is reached more rapidly. The film thickness is also reduced, which produces a cured film sooner and

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There is a Delavan nozzle for every metal finishing requirement.
Type 2172 series, designed especially for applying phosphate coatings. Furnished in type 316 stainless steel.
Type WF series provides hard-hitting fan spray for metal cleaning applications.
Type WDA series delivers finely atomized hollow or solid cone spray for metal wetting.
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WEST DES MOINES, IOWA

therefore permits earlier packaging and handling of the finished product.

Other operators prefer to use a heavy bodied material of high solids to obtain what they believe is a more substantial adhesive base. This allows an unhurried application of flock on what you might term a more precision and quality basis.

The use of baking enamels meets with considerable controversy throughout the industry. Some operators seem to believe that the hardness—and possible brittleness—results in flaked and chipped finishes. Others feel that the use of baking enamels actually proves to be helpful in flock finishing.

One source of agreement among the majority of flock finishes seems to be that the color of the base adhesive coat should match the color of the flock material.

There is a common statement that "one cannot argue with success". In the instance of flock finishing this statement proves to be doubly applicable. As long as the productive output of the final flock finish meets all of the requirements of the customer there can be no effective questioning of the methods involved—so long as the flock finisher makes a reasonable profit on every job. However, if complaints begin to appear, then an eyebrow should be raised in the direction of the base coat materials and the methods used in their application.—*T.C.G.*

Corrosion Keys for Aluminum

A new and more convenient guide to engineers in determining the corrosion resistance of aluminum has been published by Reynolds Metals Co., 2500 S. 3rd St., Louisville, Ky.

Titled "Corrosion Keys for Aluminum", the attractive brochure is intended primarily as an aid to engineers designing aluminum into process plants or equipment, although it will be of interest to those concerned with other applications of the metal.

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Keeping Up With The Times

IN A RECENT issue of this publication (Nov. 1956, page 116), the writer discussed the advantages and availability of current industrial literature and its importance. Since that time I have encountered individuals of two types which have caused a lifted eyebrow. Many of your readers can call to mind similar persons.

Visiting a manufacturing plant recently, I observed two competing salesmen of industrial finishes heatedly discussing various phases of paint application, with each naturally emphasizing the aspects which favored his own product. It soon became apparent which man really knew his subject. The other man appeared to be trying to confound confusion with commotion by filling in the background with such trite details that the foreground was lost. The more learned of the two inquired whether the latter had read the latest literature on the question at hand.

"I've got piles of literature stacked on my desk at the office," was his reply. After listening to a comment like that, it was quite obvious that science has not as yet perfected a system by which the latest information can be infiltrated into a man's mental processes by merely "stacking it on his desk."

The second non-reader type I have met is the individual who does not read the latest published information because he absolutely refuses to believe anything. Of course, some

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Metal parts are cleaned and processed by means of pressure sprays which converge on the parts from all angles. Solutions are heated to required temperatures by gas, oil or steam immersion heaters. Spray solutions remove foreign matter and perform metal treatment as required.

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advertising claims by even the most reliable concerns may, at times, be exaggerated, but separation of the wheat from the chaff is an important function of the reading process, whether it is industrial finishing or manufacturing toenails for teddy bears.

Referring to the first type of gentlemen mentioned, we must admit that numerous publications, folders, data sheets, catalogs, etc., are published regularly; and to completely digest the contents of every one would require more than the 168 hours available in a week. However, a fast look-over would indicate the nature of the information so that, if required at a future date, the reference would be available for more comprehensive study.

In the increasing technological society in which we live today, it may be that our two example types will emulate that great military general, "who doesn't die but just fades away." —*G. Norman.*

Hanson-Van Winkle-Munning Co.

Hanson-Van Winkle-Munning Co. announces the appointment of William A. Nairne as Manager of Buff Sales.

Mr. Nairne's new headquarters are in Grand Rapids, Mich., at the company's midwest plant. There he will be closely associated with H-VW-M's buffing program and staff of finishing engineers in the continuing development of a complete line of buffs for the metal-finishing and allied industries.

Fire-Fighting School in May

Ansul Chemical Co. will offer advanced training in fire-fighting techniques for the 11th consecutive year. It is the only school of its type in the world.

A series of 12 three-day courses will open May 20 at Ansul's 10-acre proving ground in Marinette, Wisconsin. Classes, which are filling rapidly will extend throughout the summer, with the final session scheduled to begin September 30.

Sales Mgr. for Stanley Chemical

Valentine B. Chamberlain, Jr., has been appointed sales manager of The Stanley Chemical Co., a subsidiary of The Stanley Works, located in East Berlin, Conn., succeeding Arthur B. Sherry, who resigned.

Mr. Chamberlain, who joined The Stanley Works in 1941 has been assistant sales manager in charge of national accounts. He was a sales representative for Stanley Chemical for ten years.

Spray Painting is Easy if . . .

Spray painting is so much fun it's hard to resist trying a hand at it, says Nancy Nagel, perky office girl at the DeVilbiss Co. She borrowed a shop coat and turned painter when she discovered there was a wall to be painted for the expansion of the company's training quarters. Popularity of the school has grown so much that additional quarters have had to be provided.

The new classroom and laboratory will be ready for forthcoming spring classes and an additional course for Contract Painters and Maintenance men has bee scheduled to start April 29.

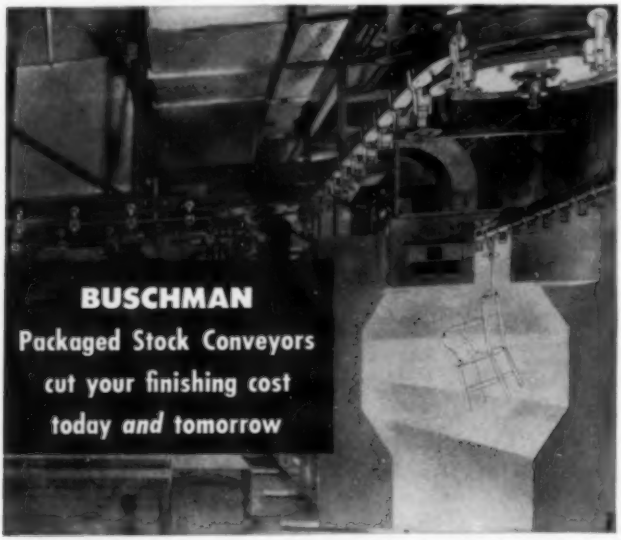
Industrial classes are now being filled for the following starting dates: April 1, May 6, June 3, July 15, August 5 and 26 and September 16. Applications should be made immediately for all of these tuition-free sessions. Information is available through any DeVilbiss representative or from the DeVilbiss Co., Toledo 1, Ohio.

Move The Process To The Product?

HAVE YOU EVER thought of taking the cleaning and painting facilities to the product? The processing of some parts, sub-assemblies and products isn't so simple as just loading them on a conveyor in the fabricating department and moving them through surface preparation, finishing, baking or curing to the assembly lines or to the packing department. Much depends on the product, its type and size, the painting requirements, methods of painting or finishing, and the plant layout.

For example, take a product that has a large casting which requires a prime coat and putty glaze before any intermediate or top coats are applied. Another example would be a product that has parts which must be cleaned, phosphate coated, etched, primed and baked before partial assembly is made, and before the top coating is applied. Still another example would be a product that must be prime coated before certain machine operations are performed, after which it receives its top coating.

Complete power washers with dry-off oven built in, and self-contained horizontal metal belt conveyors are available to meet some of these conditions. These washers may be placed anywhere in the shop. Modern spray booths ranging in size from the waist high 3x3-ft. hooded variety, up to any size water wash type may be installed in a pressurized enclosure anywhere



Buschman BUSH-LOCK "Universal" Overhead Cable Conveyors make your production and finishing processes more profitable today . . . easily convertible to meet the changing needs of tomorrow. Standard stocked parts . . . right down to the exclusive BUSH-LOCK Trolleys and compact Drive Unit . . . pre-engineered to give you a conveyor system tailored to your plant needs. Let cost-cutting Buschman Conveyors move your products and components smoothly throughout the plant.

Buschman will cooperate with industrial washer or oven equipment manufacturers whenever your plant is being surveyed.

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in the plant. And there are portable airless spray painting facilities which can be readily moved to the product. Such an installation allows the employees to work in greater comfort and it leaves more floor space for other productive operations or for the storage of parts in process.

In the old days the painting or finishing room was a permanent fixture in one building or on one floor of the plant. All parts had to be taken to the finishing room—and hauled back and forth for any interim operations.

Take another look at your products in process, study the procedures involved, especially the handling and moving of heavy work that is going on. In some cases you may be able to save labor, time and power if you move the cleaning or the painting or the baking (or all of them) to the product instead of vice versa.—*S.*

Rouse Joins Better Finishes

Leslie Rouse has been assigned by Better Finishes & Coatings, 268 Doremus Ave., Newark 5, N. J., as sales representative for the New York State area for that company's line of industrial finishes and stippable coatings.

Prior to enrolling in Better Finishes' Laboratory Training Program for its future sales personnel, Mr. Rouse represented another company in the Rochester, New York area.

Paint Masking Methods

A new 10-minute sound-strip film on industrial paint masking methods, which increase efficiency and reduce production costs, has been made for in-plant showing by Minnesota Mining & Mfg. Co., Dept. L6-321, St. Paul, Minn.

CLEAR BRONZING LACQUER NO. 2318

Mix 8 oz. Gold Bronze Powder with 1 gal. Lacquer and add equal part of thinner.

RECOMMENDED FOR METALS, WOOD AND SELECTED PLASTICS

- Has amazing adhesion and durability.
- Stays bright . . . resists tarnishing.
- Will not jell nor lose brilliance on aging.
- Has great stability . . . non-crocking.

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Paint Formulations to Meet Exacting Demands

THE PAINT and lacquer chemist is not a miracle worker. He can only juggle the theories of true science into practical workable formulations which are consistent with those theories. Unfortunately, at times some finishers have expected many miraculous materials to be produced by the industrial finishes laboratory.

Recently a manufacturer of cast iron parts set up a dip coating line in order to produce a bright enamel finish on the castings. The conveyor system was such that only ten minutes was allowed for a complete air drying of the coating before the parts were handled for packing. While not impossible, this is a difficult feat when one sees the areas where paint build-ups occur. A change in the conveyorized setup could have remedied this situation but the manufacturer refused to consider any revisions. Lacquer could not be used because of existing municipal fire ordinances in the vicinity of the shop.

One supplier did manage to produce and supply a satisfactory dipping enamel which dried in the required time, even in the heavy areas. The crowning touch was then added by the parts manufacturer. In order to save money on insurance premiums, he insisted that the flash point of this enamel exceed 105° F. Incidentally, it should also be noted, at this point, that the price he was willing to pay for paint was an extremely important factor—which therefore

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• WRITE FOR Catalog 24 . . . contains forty-eight pages of complete information on thousands of nozzle types and capacities.
SPRAYING SYSTEMS CO.
3240 RANDOLPH STREET • BELLWOOD, ILL.
ADVANCED SPRAY NOZZLE DESIGN FOR NEW DIMENSIONS IN CONTROL AND PERFORMANCE

eliminated the use of many possible raw materials in the formulation.

The speed of air drying in a synthetic enamel is based mainly on the ability of the resin component to form a film on the surface of parts or products being painted. In some cases it is oxidation; in others it is evaporation of solvent plus, perhaps, polymerization. However, regardless of which type of resin is used, when the speed of air drying gets so fast that only minutes are allowed, then the rate of evaporation of the solvent becomes extremely important.

There is no mathematical relationship between the rate of evaporation, boiling point and flash point of solvents. However, for the most part, it can be noted that grouping of rates of evaporation and boiling points into classifications will also give a group rating to flash points. Thus, for example, acetone, isopropyl ether, and methyl acetate would be in the 8-12 evaporation group (compared to butyl acetate as one); the boiling point range of 50° to 70° F., and the flash point range of 15° to 30° F. Methyl ethyl ketone and ethyl acetate, with evaporation rates of 5.7 and 6.2 respectively, and boiling points in 70° to 80° F. group would fall in the 35° to 45° F. flash point classification.

The hydrocarbon reducers, for the most part, react the same way. Thus xylol and Amsco Solvent B-90 in the evaporation class of 0.3 to 0.6 and 275° F. approximate initial boiling range, will flash at 80° to 85° F. Mineral spirits (Stoddards solvent)

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and Hi Flash naphtha in the evaporation class of 0.1 to 0.23 and initial boiling ranges of 310° to 320° F. will flash at 103° to 110° F.

There are some exceptions on these groupings as, for example, the chlorinated solvents with their non-inflammable characteristics, but their toxic nature and other undesirable features rule them out of consideration.

We must admit that there is nothing wrong with someone trying to reduce insurance premiums on fire policies, but certainly some consideration must be shown for the paint chemist who does come up with a difficult but excellent enamel, only to have additional, if not immpossible barriers thrown into his path. Our teachings have always shown the Diety to produce miracles, not the paint chemist. —*N. Gaynes.*

Buschman Co. Has New Plan For Conveyor Sales and Service

In order to satisfy the increased needs for conveyors in all types of industry, The E. W. Buschman Co., Cincinnati, Ohio, has initiated a new plan of sales operation, according to an announcement by E. W. Buschman, president. Under the new plan, Rudy B. Vogt and Victor W. Sicking, vice-presidents, will direct sales for the company's three manufacturing divisions: pre-engineered gravity wheel and roller conveyors; overhead cable conveyors; and engineered conveyor systems.

Four district managers have been appointed to direct the sales operation through representatives located in principle cities. N. H. Inderbees will manage District No. 1, which includes Indiana, Kentucky and Ohio.

J. R. Keen will be in charge of District 2 (20 states in Western area). H. L. Sellars will direct the activities in eleven states in Eastern District 3, while the fourteen states in District 4 (Southern area) will have Conrad Myers as manager.

These men have had wide experience in the Finishing Industry. All have served the Buschman Company for more than ten years individually, with a combined total of over 50 years of service.

Tips on Touching Up

IN TOUCHING up mahogany, avoid excessive use of color or stain, as this will produce a gritty appearance. Get the right color from the start. If the color leans toward violet, blend your reds with rose pink. If it leans toward orange, add some chrysoidine yellow alcohol stain. (This latter stain, really an orange-yellow, is also very effective in tinting maple.) If graining is required, Van Dyke brown and burnt umber will usually provide the correct colors.

Sometimes it is necessary to hide a defect in the wood itself, caused by a tool burn, sanded-through veneer, etc. In such cases the affected area must be first blocked out. For blond finishes, use an off-white. For others, mix the block-out or ground color to match the lightest part of the wood or finish. Then put in the darker colors and last of all, the grain. Work beyond the edge of the defective area and blend colors into the surrounding finish.

Always hold the work in the same position in which it will be seen by the ultimate consumer or user. Patches are much easier to detect on horizontal than on vertical surfaces. Keep the patch flush or just slightly below the surrounding area and fill in with clear material, whether by brush, pad or spray. If the finishing schedule calls for a shading coat or glaze, this should be applied after the patching is done. This tends to give a uniform color to the entire surface. *H. L. Round.*

Electro-Finishing Research

Kosmos Electro-Finishing Research, Inc., has moved from Belleville, N. J., to 140 Liberty St., Hackensack, N. J. In the new location a more extended program of research in metal finishing will be conducted.

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Remover Rinses Paint Away

Tedious tasks of scraping, sanding, and wire-brushing are eliminated by use of a newly developed paint remover that is easy to apply with an ordinary paint brush and which will remove stubborn coats of paint, varnish, and lacquer from wood and metal by simply directing a strong spray of water on the coated surface.

The product, developed by Pittsburgh Plate Glass Co., Industrial Finishes Division, 1 Gateway Center, Pittsburgh, is known as "Rinse Away Paint and Varnish Remover." With its use, paint may be washed away within 15 to 30 minutes after application, leaving a bright, clean surface that needs no treatment of any kind before repainting. Unlike other paint removers, Rinse Away remover leaves no residue of any kind to interfere with drying of subsequent paint coatings.

The new remover is non-inflammable and, in addition to removing surface paint, it may be used as a cleanser in reconditioning old bristle and nylon paint brushes.

For more data, circle 1 on colored card.

"Smoothie" Makes Paint Safe Over Silicone Polished Area

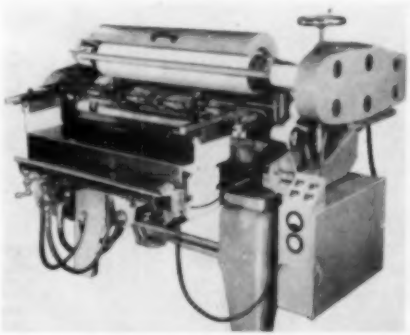
According to a bulletin published by Marson Corp., 115 Mill St., Revere 51, Mass., just one dropper-full of its product, "Smoothie", in every quart of reduced paint, makes that paint safe to use in repainting surfaces that have been rubbed with silicone polishes. It prevents "fish eyes", improves flow-out and gives increased gloss. One ounce of "Smoothie" conditions 6 to 7 gallons of ready-to-spray paint.

For more data, circle 2 on colored card.

Finishing Machine For Cutlery

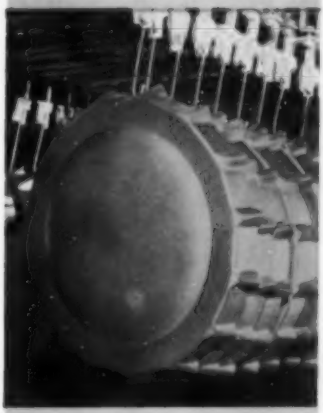
Clair Mfg. Co., Inc., Olean, N. Y., announces its Model No. 402, a standardized glazer and mirror finisher for the cutlery and related industries. This model, developed in collaboration with leading cutlery experts, meets all requirements for any surface finishing operation on blades or handles, flat of contoured—and it can be converted to an "Edger" in a few seconds.

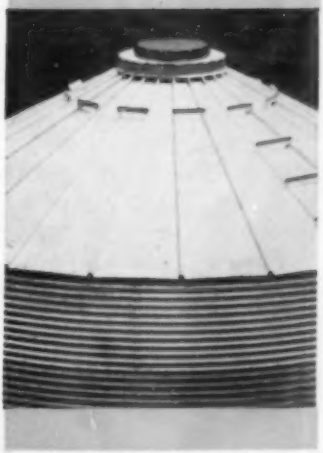
Model No. 402 places strong emphasis on safety and efficiency. Body contact with the emergency bar simultaneously opens rolls, cuts motor



Safety for operator—and work in process.

The gold lacquer that stays bright —outdoors





When the sales department of Black, Sivalls & Bryson, Inc., Kansas City, Mo., fabricators of metal equipment for the oil, gas, chemical and agricultural industries, suggested spot use of a gold color to "trademark" their products, the idea was enthusiastically received.

But the poor outdoor performance of conventional gold lacquers almost shelved the program. They deteriorated rapidly and within a few months became dull and tarnished. To save the idea, the problem was turned over to the M. L. Campbell Co., Kansas City, Kansas, who supplied a gold lacquer based on Half-Second Butyrate. It proved to be the answer by providing a durable, non-tarnishing film on all the various metals to which it had to be applied—cold-rolled steel, galvanized steel, aluminum, and cast iron.

Today Black, Sivalls & Bryson promotes its "Gold Dome" and "Gold Crown" line for its propane tanks, grain bins and vent valves. Thanks to Half-Second Butyrate, field life of this distinctively colored lacquer is estimated at three to five years.

Half-Second Butyrate vehicles do not react with metallic pigments. Hence, this gold lacquer can be delivered already mixed without danger of gelling during storage. Half-Second Butyrate lacquers are also easily sprayable. They have a high degree of strength, flexibility, and scuff and mar resistance. These durable lacquers resist breakdown and discoloration when exposed to sunlight. Half-Second Butyrate is a low-density material and produces high coverage per pound of film former. Important, too, is its solubility in low-cost solvent systems.

Half-Second Butyrate lacquers have solved many problems for industry. Investigate the advantages this film former offers in standard and special formulations. Ask your regular lacquer supplier for details, or write us for more information.

Eastman CHEMICAL PRODUCTS, INC., Kingsport, Tenn., subsidiary of Eastman Kodak Company

SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; New York City; Framingham, Mass.; Cincinnati; Cleveland; Chicago; St. Louis; Houston. **West Coast: Wilson Meyer Co.,** San Francisco; Los Angeles; Portland; Salt Lake City; Seattle.

and arrests all actuations. The work rack serves as a foolproof operating control. When withdrawn, the rolls open automatically; when properly and safely replaced in guide-ways, they close again. Any failure of the safety circuit stops the closing action.

Safety has been emphasized in the application of bar compound. Horizontal design assures maximum efficiency with minimum operating fatigue; 40-in. waist level loading requires no back bending, but allows perfect visibility and exceptional cleanliness. The rolls can be changed in two minutes; they float against controlled air pressures, ready to withstand forced opening without damage.

The new model is efficient because hydraulic and air actuations are completely flexible as to speeds and magnitudes. All operating adjustments, wheel or hand cranked, can be made without stopping the machine.

Sensitive air floating action of rolls assures uniform contact pressure regardless of taper. The rolls are open as the work is placed in the machine. This makes the Model 402 superior for blades, which are in motion as the rolls automatically close and contact them. Predetermined maximum contact pressure can be applied without fear of localized damage to blade tips.
For more data, circle 3 on colored card

"No Load" Finishing Paper

No Load Crystolon Finishing Paper has found a wide variety of usage in the metal working industry. Armour & Company's Coated Abrasives Division formally introduced this new type finishing paper to the industry last year after several years of extensive product research.

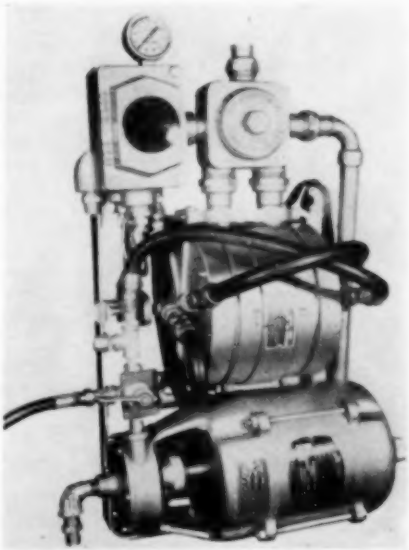
Today, in the automotive industry, No Load Crystolon Finishing Paper is being used for a primer sanding, prime on hoods and repairs on hoods and decks, rubbing prime coat and first enamel coat, etc.—*Armour & Co., Alliance, Ohio.*
For more data, circle 4 on colored card.

Material Viscosity Controlled Automatically at Paint Heater

The Spee-Flo Co., 720 Polk, Houston 2, Texas, announces a new "Viscomatic" Hot Spray heater with "Dial-a-Matic" temperature and viscosity control by the setting of an external dial.

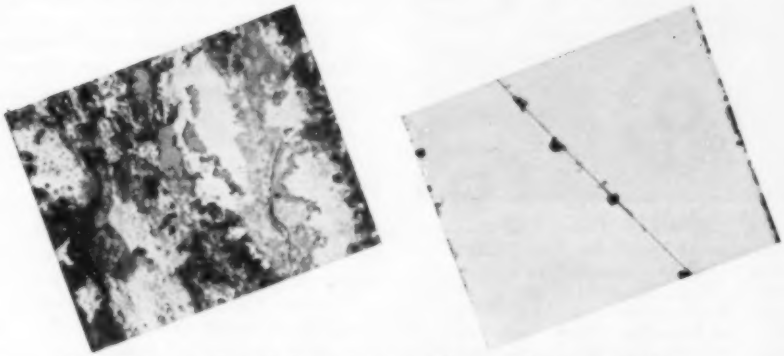
With this new unit, the desired temperature and viscosity control settings can be dialed, even while the unit is in operation; this was not previously possible with hot spray heaters.

In the past, special formulations have often been required for use with hot spray. This feature tended to restrict the use of the process, in spite



Controls both temperature and viscosity.

Which panel took the longest salt shower?



The one on the right — the steel panel protected before painting by Wyandotte PRE-FOS®

The painted steel panel showing by far the least corrosion damage was exposed to A.S.T.M. standard salt spray *154 hours longer* than the badly rusted one! . . . proof of the effectiveness of PRE-FOS in the preparation of metals for painting.

Wyandotte PRE-FOS simplifies processing by cleaning and phosphating in a *single* operation; deposits a fine-grained, corrosion-resistant iron phosphate coating, which saves paint and provides superior impact resistance.

What's more, PRE-FOS prevents rusting of "in-process" steel parts; may be adapted for spray-washing or soak-tank use.

Improve your "finish" with PRE-FOS. Get details from your Wyandotte man, today! *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Also Los Nietos, California. Offices in principal cities.*

Above, unprotected steel panel (left), degreased and painted — exposed to 96 hours of salt spray, compared to panel (right) protected by PRE-FOS before being given identical coat of paint and exposed to *250* hours of salt spray!

Wyandotte CHEMICALS

J. B. FORD DIVISION

THE BEST IN CHEMICAL PRODUCTS FOR METAL FINISHING

George W. Walker (left), vice president and director of styling for Ford Motor Co., receives from Abraham Reynolds, executive director of Reynolds Metals, one of several anodized aluminum color plaques developed recently by Reynolds. With them (center) is Robert H. Maguire, chief advanced stylist for Ford Motor Co. Mounted on each plaque are nearly 20 chips of various colors and finishes designed for use in car interiors. They will be used by Ford as a visual styling aid for those concerned with the application of colors in aluminum interiors.

of its known quality control and economy features. Some materials demand high temperature for maximum advantages, while others are limited in temperature range.

Now, the Spee-Flo "Viscomatic" heaters are adjusted to the material being used, rather than requiring that materials be re-formulated. With the "Viscomatic", temperature control at any desired level between 90° and 180° F. is accomplished simply with finger-tip "Dial-a-Matic" control.

All standard paint materials, including lacquers, enamels, vinyls, epons, and the wide range of oil base paints, as well as the specially formulated hot spray materials, are handled with equal ease with this new unit.

"Viscomatic" model heaters incorporate a sensitive fluid temperature controller, thermometer and fluid passage-way through which the paint is circulated for temperature control. These combine three features which are unique in hot spray equipment:

1) Simple, maintenance-free centrifugal pump which has no gears or close tolerances to wear.

2) The Spee-Flo "coil-less" heat exchanger which requires no cleanout or special maintenance.

3) The "Viscomatic" external temperature "Dail-a-Matic" controller, with finger-tip external temperature control.

Spee-Flo has rleased its newest edition of the booklet "Why Hot Spray?" in which the advantages of hot spray application are detailed with pictures and case histories. The booklet is available, free of charge.

For more data, circle 5 on colored card.

Liquid Abrasive Blasting

Propeller blades receive a matte finish in this special liquid Honing machine at Trans World Airlines' new

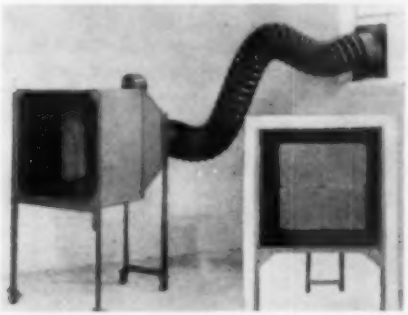
Propellers receive special liquid honing.

$25 million overhaul base near Kansas City, Mo. Fine silica abrasives, suspended in a liquid medium, are shot in a stream against the blade, giving it a soft, velvety finish. This process removes small nicks in the blade, as received in service. The machine is made by the Vapor Blast Mfg. Co., 3025 W. Atkinson Ave., Milwaukee 16, Wis.

For more data, circle 6 on colored card.

Portable Spray Booth

A new type of portable, industrial spray booth for small paint areas has been dveloped by the Detroit Fabricating Corp., Detroit, Mich., and will be distributed by the Atech Supply



Filter pads in the back catch all overspray.

Company, 2970 W. Grand Bl'v'd., Detroit, Michigan.

The spray booth is available in two sizes, 35 x 33-in. and 48 x 48-in., and is ideal for use in connection with spray painting small parts where floor space is limited.

A non-ferrous metal fan draws overspray through arrestor type filter pads. These pads are approved by the National Board of Fire Underwriters, are easy to change and are economical to replace. The efficient air filteration made possible by this booth reduces cleaning time, cuts labor costs and increases production volume.

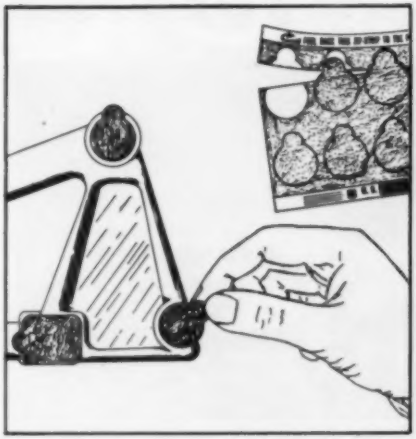
The booth stands on four legs which can be fitted with wheels, available as optional equipment. Also available is a flexible exhaust pipe which permits venting out any window, eliminating the need for expensive vent stacks.

For more data, circle 7 on colored card.

Tab Masks Pull Off Fast

This pre-cut, self-sticking mask is removed quickly and neatly by means of a non-adhesive tab which is part of the mask. Developed by the W. H. Brady Co., 727 W. Glendale Ave., of Milwaukee 9, Wis., and originally intended for masking hard-to-reach and recessed areas, the new Tab Mask speeds finishing wherever pre-cut masks are used.

The non-adhesive tab folds back out of the way when applied. To remove, merely grab the tab and pull.



They are easy to pull off by hand.

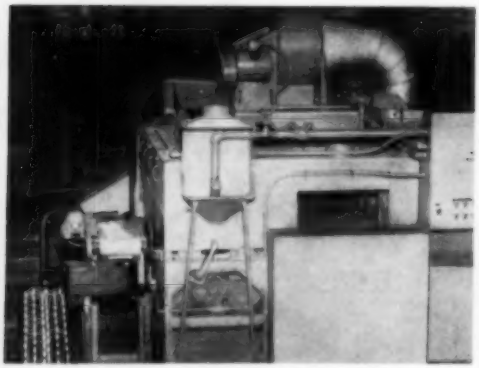
Brady Tab Masks are pre-cut in any shape to exact specifications. They can be furnished in a variety of masking tapes to suit most finishing conditions of temperature, bake cycles and materials. They come mounted on handy dispenser cards for fast application and easy storage.

For more data, circle 8 on colored card.

2-in-1 Multi-Process Cleaning Machine at Western Metal Show

Visitors at Booth 437 in the Pan-Pacific Auditorium during the 1957 Western Metal Show, March 25-29, will see a machine designed and built to effect valuable floor space savings, reduce processing time, perform the work of two machines, prevent mixing of work and reduce manual handling.

Ransohoff, Inc., Hamilton, Ohio, will exhibit a Combination Continuous Drum and Belt Conveyor Type Cleaning Machine. Small work or parts are washed, rinsed and dried in the drum section, and larger work or tote pans are processed at the same time in the conveyor section.



Washes, rinses and dries different products on two production lines.

The drum and conveyor type units are contained side-by-side in the same machine housing and integrated so that the same pumps, tanks, blower and heating equipment serve both sides.

Design of the machine is extremely versatile to permit incorporation of pickling, neutralizing, phosphate coating or similar processes. Tanks and drying air of the machine on exhibit are heated by gas, but they may be heated by steam, oil or electricity.

One man operation is provided by return conveyors. Small work or parts processed in the drum section are automatically returned by belt conveyor to the charging end; larger work or tote pans processed in the conveyor section are automatically discharged onto a gravity type conveyor returning to the charging end of the machine. Completely automatic operation can be provided by integrated loading, unloading and transfer equipment.

For more data, circle 9 on colored card.

Plastic Masking Plugs

Plastic caps and plugs in several different sizes and designs—suitable for use as masks for painting—are offered by Protective Closures Co., Inc., CaPlug Division, 2207 Elmwood Ave., Buffalo 23, N. Y. They are called CaPlugs.

For more data, circle 10 on colored card.

Flame-Resistant Flock Adhesive

Adhesive Products Corp., 1660 Boone Ave., New York 60, N. Y., announces the development of a new flame-resistant adhesive, Flok-Grip, for dipslay and decorative uses. It can be used to adhere such materials

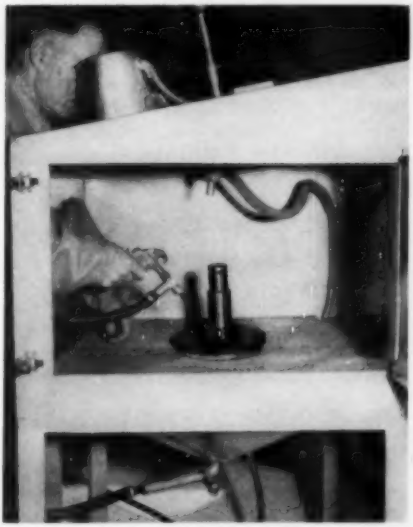
as cotton, wood or synthetic fiber flock; glitter and flitter; plastic, glass, wood or styrofoam beads; plastic petals, confetti or other decorative materials to such varied bases as natural wood branches, leaves, evergreens, artificial flowers, plaster ornaments, or anything else to which surface decor is to be applied.

For more data, circle 11 on colored card.

Sandblast Cabinet

A sandblast cabinet that may be used either with its adjustable mounted blast unit or with a trigger-controlled hand blast gun, is offered by Cyclone Sandblast Equipment, 42 Clara, St., San Francisco, Calfornia.

It permits fast production runs that lend themselves to sandblasting by mounted blast units; yet the hand gun can be used by the same operator when he has angles and crevices.



Offers both automatic and hand spray.

INCREASE PAINT SPRAY BOOTH EFFICIENCY .... AND SAVE TIME, FLOOR-SPACE, MONEY!

Photo Courtesy Argo Lamp Co., Philadelphia, Pa

. . . with R P Paint Arrestors

The Argo Lamp Co. found R P Paint Arrestors more efficient, more economical in arresting paint overspray than the more elaborate and expensive system previously used. Investigate the many advantages of these inexpensive, replaceable pads to increase booth efficiency, reduce floor-space requirements and maintenance costs. Write today.

RP . . . PRODUCTS OF RESEARCH — AFI MEMBER

Research Products Corporation

Dept. 34, Madison 10, Wis.

The mounted unit may be raised or lowered to more conveniently blast the object, and it may be raised out of the way when the hand gun is used. The blast action of the mounted unit is controlled instantly by a stop-and-start foot valve.

For more data, circle 12 on colored card.

New Spray Gun Receiver Prevents Paint Clogging

Clogging due to paint hardening in the nozzle of spray guns between operating periods is prevented when the gun is placed in the Protectoseal Spray Gun Receiver. Paint spray guns are always ready for instant use, regardless of the time lapse between operating periods; and the annoying, time-consuming necessity of daily gun cleaning is eliminated.

The new Protectoseal Paint Spray Gun Receiver keeps the nozzle tip of the spray gun in a solvent solution when not in actual use to prevent the paint from hardening to close the opening. Only the nozzle tip is in the solution; the packing is kept away from liquid and vapor so that it is not affected in any way. The receiver is small, compact, with rounded corners, and may be located in the natural position the operator is accustomed to use on the spray booth wall or bench. The gun is held securely in the receiver with hoses still attached, and is always ready for use.

A reservoir tank, located well out of the way of the operator, keeps a constant liquid level in the receiver. The perforated metal fire baffle in the gun port opening prevents ignition of the solvent in the spray gun receiver from exterior sources.

Equally important in many paint spraying operations are the paint hose quick-connector receivers. Similar in principle to the spray gun receiver, these are made in various capacities to accommodate all the different color paint hose lines that are required at the spray booth. The receivers keep the paint hose quick-connector ends in solvent to prevent paint hardening at this critical point when not in use.

Paint Spray Gun Receivers and Paint Hose Connector Receivers are made by The Protectoseal Co., 1920 S. Western Ave., Chicago 8, Illinois.

For more data, circle 13 on colored card.

Solvent receivers for hose connectors and spray guns keep these parts ready for use.

Gold Tape for Decorating

A new technique of decorating products with metallic trim is possible with a new "gold" tape introduced by Minnesota Mining & Mfg. Co., Dept. L7-19, St. Paul, Minn.

The new tape, "Scotch" brand gold polyester film tape No. 850 can be used on many products where gold plating or brass trim is now applied. It has a high metallic luster and can be cleaned like any polished metal; is tough, flexible, and resistant to abrasion.

For more data, circle 14 on colored card.

For Your Convenience

Use INDUSTRIAL FINISHING magazine's "Reader Service" return cards to obtain further information on products described and illustrated in the "Materials; Supplies; Equipment" section which precedes this page; also, to receive further information on what manufacturers have to offer—literature, products, supplies, services, etc., as mentioned on the following pages.

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1142 N. Meridian Street

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What Manufacturers Offer--Literature, Products, Supplies, Services

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Some of the returned cards we receive are not filled in correctly—and we cannot read a few of the hand written names and addresses. Before returning a card, please check to see if it is marked correctly—and legibly. Thank you.—Editor.

Spray Painting Masks, clamps, fixtures and automatic spray painting machines for intricate multiple color decorative painting on a production basis, are specialties of Conforming Matrix Corp., 331 Toledo Factories Bldg., Toledo 2, Ohio.
For more data, circle 15 on colored card.

Acyrlic, Alkyd, Vinyloid coatings for a wide range of special jobs, are offered by The Varnish Products Co., 5206 Harvard Ave., Cleveland 5, Ohio.
For more data, circle 16 on colored card.

Automatic Viscosity Control for spraying, flow coating and dipping improves quality of painting and finishing by providing continuous uniformity of paint material. Norcross Corp., 247 Newtonville Ave., Newton 58, Mass.
For more data, circle 17 on colored card.

"Why Hot Spray?" A free book contains many of the answers—the important ones—and reveals why so many concerns are adopting it. Spee-Flo Co., Dept. IF-28, 720 Polk, Houston, Texas.
For more data, circle 18 on colored card.

Synthetic Baking Enamel called "Durapol" is featured by Maas & Waldstein Co., 2110 McCarter Highway, Newark 4, N. J., as a new member of more than 50,000 exclusive formulas. One coat provides a whiter white than ordinary white enamels; a white ultra-resistant to yellowing. Available in unlimited colors. Typical applications include home appliances, lighting-fixture reflectors, and all products requiring good ultra-violet, salt spray and stain resistance.
For more data, circle 19 on colored card.

Electro Cold Stripper takes off Scotchlite reflective sheeting and background paint in seconds from traffic and road signs, whether aluminum or steel. **Non-flammable**; non-toxic; no heat; no current. Allied Finishing Specialities Co., 2641 W. Grand Ave., Chicago 12, Ill.
For more data, circle 20 on colored card.

Industrial FINISHING

April, 1957, Issue

READER SERVICE DEPARTMENT

Without obligation, please see that we receive further information and manufacturers' literature identified by the numbers circled on his card:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
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89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108		
109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125					
126	127	128	129	130	131	132	133	134	135												

Name.....*Title*.....
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My company's name.....

Street Address.....

City.....*Zone*.....*State*.....

Remove Paint Fast with Wyandotte alkaline strippers Merostrip or Special "H", high caustic types that handle tough paint in record time. Sprazee, 444-C, Supersolve and P-1075, four types of Organic Strippers that handle baked enamels, lacquers, varnishes, etc. Use cold or heated, dilutes up to six parts water. Wyandotte Chemicals Corp., Wyandotte, Mich.

For more data, circle 21 on colored card.

Smooth Flow Spraying Stains are formulated along entirely different lines from any spraying stain thus far made. They are the stains of the future for all soft and semi-soft non-pore woods. Foolproof in spraying applications applied in any manner, either wet or dry coats. Will uniform contrasting species of the same wood and will dry in one hour to an even or uniform color without dark spots in the soft part of the wood. Samples to manufacturers only. Lawrence-McFadden Co., 7430 State Road, Philadelphia 36, Penna.

For more data, circle 22 on colored card.

Wrinkle Finishes are our specialty. If you are interested in a better wrinkle finish —write for free sample to Union Chemical Corp., 410 Frelinghuysen Ave., Newark, N. J.

For more data, circle 23 on colored card.

Silk Screens, to specifications, made by The Naz-Dar Co., 461 Milwaukee, Chicago 10, Illinois. Silk, nylon or metal cloth. Absolutely taunt screens for perfect registry to last impression of run. For TV sets, name plates, toys, dials, ash trays, chassis, printed circuitry. Naz-Dar weatherproof silk screen enamel of uniformly high opacity.

For more data, circle 24 on colored card.

Tack Rags For Wiping surfaces clean, pick up and hold the loose dust and lint, so it doesn't fly into the air and alight on other surfaces near by. Excellent for cleaning before finishing. Detro Sales Co., Inc., Culver City, Calif.

For more data, circle 25 on colored card.

Pearl Lacquer Paste called "Perle Brillante", is offered by The Pearl Pigments Corp., 424-432 Cottage Place, Plainfield, N. J. It is the result of 32 years of research and development. Available in nitrocellulose or in acqueous dispersion.

For more data, circle 26 on colored card.

Iridite Chromate Coatings are corrosion resistant and they provide an excellent base on various metals to be given later decorative finishes. Applied by dip or spray. Allied Research Products, Inc., 4004 E. Monument St., Baltimore 5, Md.

For more data, circle 27 on colored card.

Tack Cloth for Wiping Dust. It's available in different meshes, in envelopes, rolls or bulk. Lint free, wax free; no danger of spontaneous combustion. Bond Chemical Products Co., 2641 N. Clybourn Ave., Chicago 14, Ill.

For more data, circle 28 on colored card.

Vapor Degreaser; Liquid Dip. A combination of liquid solvent dip and vapor degreasing in one small safe automatic machine where shallow trays hold the work in process. One of several different models all of which are described and illustrated in a new catalog. Phillips Mfg. Co., 3459 W. Touhy Ave., Chicago 45, Illinois.

For more data, circle 29 on colored card.

Baking and Drying, as applied to a variety of conveyorized operations in connection with finishing (before, during and after) is a specialty with Young Bros. Co., 1835 Columbus Rd., Cleveland 13, Ohio. Bulletin 4 tells about it.

For more data, circle 30 on colored card.

Exposure Tests. Actual weathering, corrosion and sunlight tests, direct and under glass for quick predetermination of durability and permanency in southern Florida by South Florida Test Service, 4201 N.W. 7th St., Miami 34, Florida.

For more data, circle 31 on colored card.

Spray Nozzles for metal finishing applications, by Delavan Manufacuring Co., West Des Moines, Iowa. Type 2172 series is designed for applying phosphate coating; Type WF series provides hard-hitting fan spray for metal cleaning applications; Type WDA series delivers finely atomized hollow or solid cone spray for metal wetting. Catalog IND gives complete details.

For more data, circle 32 on colored card.

Graining and/or Roller Coating; flat and curved surfaces, edges, etc., with or without steady belt feed. Small and large machines. Kent Rotary Equipment Co., 257 S. Spring St., Los Angeles 12, Calif.

For more data, circle 33 on colored card.

Wood Fillers, formulated to meet your requirements, by a firm with 50 years experience in the manufacture of wood finishing materials. A complete range of colors, types and drying times is available. Inquiries relative to any filling problems are invited. Lindeman Wood Finish Co., Inc., 1602-10 W. Washington St., Indianapolis 2, Indiana.

For more data, circle 34 on colored card.

Sun Ray Quality Steel Wool assures fine finishes, according to the manufacturer, The Williams Co., London, Ohio. Free steel wool sample sent upon request. Sun Ray steel wool may be had in a variety of grades for every job; layer built pads; rolls; reels; bulk pound tubes.

For more data, circle 35 on colored card.

5-Gallon Paint Mixers and other sizes of safe, compact motor-driven container shakers or vibrators. Miracle Paint Rejuvenator Co., 128 E. 10th St., St. Paul, 1, Minnesota.

For more data, circle 36 on colored card.

Lacquers, NGR Stains, and everything used for finishing fine furniture, cabinets, pianos, etc., plus styling and technical service—in Southeast U. S. A. Snyder Brothers Co., P. O. Box 631, Toccoa, Ga.

For more data, circle 37 on colored card.

Solvents and Chemicals. Quick, helpful suggestions for the solution of technical problems involving solvents and chemicals are provided by members of the Solvents and Chemicals Group, 2540 W. Flournoy St., Chicago 12, Ill. All members, strategically located in many sections of the country, maintain laboratory facilities and technical men to help serve industry.

For more data, circle 38 on colored card.

Finishing Ovens, accurately controlled as to temperature, humidity and ventilation, bake variety of color coatings with satisfactory results. The Lanly Co., 760 Prospect Ave., Cleveland, Ohio.

For more data, circle 39 on colored card.

Instant Stripper for metal or wood finishes is featured by V. J. Dolan & Co., 1830 N. Laramie Ave., Chicago. Is nonflammable and non-toxic. Removes almost instantly, most finishes—enamels, either lacquer or synthetic (baked or air dry), paints, varnishes, etc.

For more data, circle 40 on colored card.

Two Sanders in One. The "Easy" Dual-Action sander is two sanders in one. Speeds up tough jobs. Removes scratches, grinder, file and tool marks, smoothing, blending solder, high lighting, sanding surfacer, polishing, honing. Detroit Surfacing Machine Co., 1268 E. Eight Mile Road, Detroit 20, Mich.

For more data, circle 41 on colored card.

Multakolor—One-Spray Coat. A product of United Lacquer Mfg. Corp., Linden, N. J. Multakolor is a one-spray coat material which gives a textured finish of two or more colors. Can be used on any surface.

For more data, circle 42 on colored card.

Wood Graining Machines. Vertical or horizontal roller models to make faithful grain reproductions on flat work or assembled cabinets. Easy, safe and fast in operation. Hamant Tool Co., Inc., 2916 E. Second St., Dayton 3, Ohio.

For more data, circle 43 on colored card.

Sparkling Eye-Catcher Finishes for all fine products where lasting protection and tasteful decoration are essential—these characterize the new materials offered by Rockford Varnish Co., Rockford, Illinois.

For more data, circle 44 on colored card.

Infrared Ovens of any size or shape can be assembled from completely wired interlocking sections of ceramic type generators. dri-Quick Division of Dry Clime Lamp Corp., Greensburg, Indiana.

For more data, circle 45 on colored card.

Tough Finishes, Custom Made, for display counters and racks in stores, in pastel colors, are among several recent bake finish creations for metal by Grand Rapids Varnish Corp., Grand Rapids 2.

For more data, circle 46 on colored card.

Dust Respirator with double filters for easy breathing, is designed for comfort and safety of spray painters and chemical workers. H. S. Cover, South Bend, Ind.

For more data, circle 47 on colored card.

Screen Process Supplies including screens and all accessories, process colors, drying equipment, etc., are offered by Advance Process Supply Co., 1442 W. Kinzie St., Chicago 22, Ill.

For more data, circle 48 on colored card.

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Paint Spray Book. A 32-page informative book that reveals the latest in installation data, suggested systems and basic "packages of equipment" for any size spray painting operation, is offered by Stewart-Warner Corp., Alemite Dept. AE-47, 1850 Diversey Pkwy. Chicago 14, Ill.

For more data, circle 49 on colored card.

DeVilbiss Hot Spray offers substantial savings, according to the experience of users. For example, one firm says, "we save 55 gallons of paint per week". Many more interesting facts are available through DeVilbiss representatives. The DeVilbiss Co., Toledo 1, Ohio.

For more data, circle 50 on colored card.

Appliance Enamels, in the Glidden line, including primers, offer excellent film-building qualities, long wear endurance and resistance to everything that might contact or harm an appliance finish. The Glidden Co., Industrial Finishes Division, 900 Union Commerce Bldg., Cleveland 14, Ohio.

For more data, circle 51 on colored card.

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All paint restored to its original consistency without opening the can.
2 minutes per gal.
MIXERS AVAILABLE
¼ PT. to 55 GALS.
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128E. 10th St., St. Paul 1, Minn.

5 GAL. MODEL

Speedip Whirl Enameler is fast, clean and economical for coating a variety of small parts (up to 20-in. long) of wood, metal or plastic. It involves a power dip, lift and fast whirl, all inside a closed container. Ronci Machine Co., 2 Atlantic Blvd., Centerdale 11, R. I.

For more data, circle 52 on colored card.

Primer for 25 Metals, "Gripalloy" is available in black and colors; excellent adhesion . . . . and resistance to salt spray and solvents. Tenax Finishing Products Co., 390 Adams St., Newark 5, New Jersey.

For more data, circle 53 on colored card.

Ideal Tack Rags are used prior to painting, to wipe off and hold dust, dirt, sand particles and lint too small to see, but which might leave a blemish or defect on the final coat of paint or finish. Ideal Chemical Co., 1499 Dean Drive, South Euclid 21, Ohio.

For more data, circle 54 on colored card.

Strippable Spray Booth Coating. Booth cleaning costs reduced to minimum when walls are coated with "Liquid Envelope". Over-spray peels off quickly, cutting overtime and wasteful downtime. Promotes safety from fire and improves illumination. 5-gallon test sample at drum price. Better Finishes & Coatings, Inc., 268 Doremus Ave., Newark 5, N. J.

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"Push Button" Touch-up Spraying direct from small container which is held in the hand and directed to the area to be coated. A quick and easy way to spray a matched touch-up coating. Sprayon Products, Inc., 2075 E. 65th St., Cleveland, Ohio.

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If you want to hold down costs—and get a fine-appearing, long-lasting finish — find out about Thompson Air-Dry Enamels. Made in many colors and degrees of gloss, they give you adhesion, toughness, durability—and the extra advantage of fast air-drying. Write for literature.

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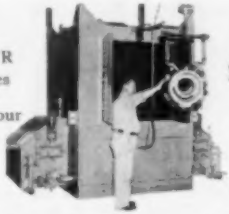
Model CAB 42" x 42" WR STM processes ten or more castings per hour operated by one man.



NEW
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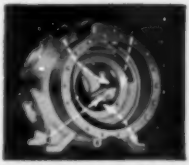
removes all traces of metal chips and dirt . . .
reaches hidden inner recesses of castings.

A new installation for The Trane Company required large compressor castings to be cleaned free from chips and dirt . . . rinsed, coated with rust preventive and dried. Industrial's staff developed this cabinet type washer with a special "spin-n-spray" design that achieves the task easily with the most effective cleaning results.



Compressor Casting, courtesy of The Trane Co. La Crosse, Wis.

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Perlite . . . . Air Dry Conversion Finish for furniture, especially blond or light colored woods—pink suites, tones, limes, grays, etc. Ideal for novelty furniture, utility tables, kitchen cabinets, bedroom furniture and other case goods. No force drying is necessary, but you get the advantages of a baked finish. A product of Perfection Paint & Color Co., Indianapolis 2, Indiana.

For more data, circle 57 on colored card.

Uniform Oven Heat is only one of several merits characteristic of Kirk & Blum ovens—batch-type and those through which conveyors operate. The new catalog "Ovens for Industry" tells about them. The Kirk & Blum Mfg. Co., 3131 Forrer St., Cincinnati 9, Ohio.

For more data, circle 58 on colored card.

Clean Dry Air assured with the use of the Textite Separator. Eliminates costly finishing imperfections: blisters, bubbles, craters, blushings. The Textite Separator uses all cleaning principles—centrifugal force, scrubbing, capillary attraction, jetting, rapid expansion and flow reversal. Chicago Manufacturing & Distributing Co., 1928 W. 46th St., Chicago 9, Ill.

For more data, circle 59 on colored card.

Hammer Effect Finishes are both ornamental and useful for a variety of products. They are available in a variety of colors. The Clinton Co., 1210 Elston Ave., Chicago 22, Ill.

For more data, circle 60 on colored card.

Airless Spray System offered by Bede Products Corp., Amherst, Ohio. Use of booths optional. Especially adapted to spraying large items. Health hazards are held to a minimum due to less overspray. Literature available.

For more data, circle 61 on colored card.

Kerpon Protective Coatings, formulated of Epoxy resins, afford better protection from corrosion caused by acids, caustics, moisture, alkalies, salt spray, water and weather elements. Kerr Chemicals, Inc., Box 89-F, Park Ridge, Illinois.

For more data, circle 62 on colored card.

Ionic Electrostatic Spray Process has several features of interest and economic value. Four processes available. Free demonstrations offered. Scientific Electric Co., 105 Monroe St., Garfield, N. J.

For more data, circle 63 on colored card.

Cleaning-Painting-Drying, and all intermediate operations or intervals can be combined in one efficient, continuous, conveyorized setup that saves space, saves labor and prevents waste. Peters-Dalton, Inc., 17916 Ryan Road, Detroit 12, Mich.
For more data, circle 64 on colored card.

Cres-Lite Bronze Powders for smoother, more brilliant plated-effect finishes, are offered by Crescent Bronze Powder Co., 118 W. Illinois St., Chicago 10, Ill. Full range of colors; immediate delivery. Design department will create new colors and shades of metallic finishes upon request. Free color card showing 33 of the most popular colors in Cres-Lite Bronze powders always in stock.
For more data, circle 65 on colored card.

Cold Degreasing Solvent, Chlorothene, is efficient, fast working and safe (it has no flash or fire point). Cleans by spray, dip, wiping or bucket methods. The Dow Chemical Corp., Dept. S-947D, Midland, Michigan.
For more data, circle 66 on colored card.

Fill Drums Safely (explosion proof) with automatic solenoid controlled drum filling valve with control switch. Fills containers on scales to any predetermined weight. The Vol-U-Meter Co., P. O. Box 54, Buffalo 16, New York.
For more data, circle 67 on colored card.

Pearl Iridescence. "Nacromer," added in small quantities, to transparent dyes and clear lacquers, imparts premanently attractive effects. It can be added to finishing materials for metal, plastic, leather, paper or wood. A demonstration sample is offered by The Mearl Corp., 153 Waverly Place, New York 14, N. Y.
For more data, circle 68 on colored card.

Wood Grain Reproduction. New Sturdy high quality machines for exacting grain reproduction—some practically automatic in operation—are offered by Schmutz Mfg. Co., 1600 W. Main St., Louisville 3, Ky.
For more data, circle 69 on colored card.

Natural and Synthetic Pearl finishes in air dry or bake coatings for a variety of products, are offered by Rona Laboratories, Inc., E. 21st & E. 22nd St., Newark 5, New Jersey.
For more data, circle 70 on colored card.

Koch Conveyorized Systems are used to finish almost everything according to the manufacturers, George Koch Sons, Inc., Evansville 4, Indiana. Case histories of improved installations that have saved time, money and manpower for others are included in the Koch Finishing System story—write for it.
For more data, circle 71 on colored card.

Washers, Booths, Ovens, plus dust collectors and ventilation, singly or in a complete engineered layout with conveyors, are offered by Newcomb-Detroit, 5753 Russell St., Detroit 11, Mich.
For more data, circle 72 on colored card.

Graining Plates of any pattern, size or shape (wood grain, leather, marble, fabric, etc.) for hand or machine graining. American Richwood Products Co., 104 E. Mason St., Milwaukee 2, Wis.
For more data, circle 73 on colored card.

Pearl Essence Finishes—what they are and how to use them is included in a free Technical Bulletin offered by the Argenta Products Co., Eastport, Maine.
For more data, circle 74 on colored card.

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BAKE OR AIR DRY FOR
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Phone Bigelow 3-0508

Water Wash Filters filter deactivated overspray paint from the wash water before it can be recirculated and cause plugged nozzles and other trouble. Industrial Filtration Co., 96 Industrial Ave., Lebanon, Indiana.

For more data, circle 75 on colored card.

Drum Upender No. 32. A simple tool that enables a workman to upend a heavy steel drum of material quickly, easily and safely. Morse Mfg. Co., Inc., 763 W. Manlius St., E. Syracuse, N. Y.

For more data, circle 76 on colored card.

Spray Nozzles are described and illustrated in Catalog 24, issued by Spraying Systems Co., 3240 Randolph St., Bellwood, Illinois. Complete information on thousands of nozzle types and capacities given.

For more data, circle 77 on colored card.

Agateen makes a finish that's as pretty and smooth as polished agate. It imparts an element of charm and enchantment to a great variety of fine products. Agate Lacquer Mfg. Co., Inc., 11-13 43rd Road, Long Island City 1, N. Y.

For more data, circle 78 on colored card.

Complete Finishing Systems (also essential parts of such systems) for large or small operations, are designed, engineered, built and installed by The R. C. Mahon Co., Detroit 34, Mich.

For more data, circle 79 on colorer card.

Toners, Stains and Fillers to produce latest style colors on furniture and fine cabinet work; also clear sealers and lacquers. The Gilbert Spruance Co., Richmond & Tioga Sts., Philadelphia 34, Pennsylvania.

For more data, circle 80 on colored card.

Multicolor One-Coat Finish called "Spex" is featured by V. J. Dolan & Co., Inc., 1830 N. Laramie Ave., Chicago 39, Ill. Provides a combination of two or more distinct contrast or harmonizing colors in one coat with standard spray equipment. Hides all surface irregularities. Suitable for finishing wood, metal, plastic, brick, concrete and all types of composition board. Dries like lacquer. Available in a great number of attractive stock colors. Color card available.

For more data, circle 81 on colored card.

Custom Industrial Finishes—Stains, Glazes, Fillers, Lacquers, Enamels, Synthetics. New finishes developed to meet special needs. Wolverine Finishes Corp., 836-50 Chicago Drive, S. W., Grand Rapids 9, Mich.

For more data, circle 82 on colored card.

Paint stripping Clinic. Send samples, specimens or test panels and get an early report on the fast, economical way to strip off the coating safely. The DuBois Co., Inc., 1120 W. Front St., Cincinnati 3, Ohio.

For more data, circle 83 on colored card.

Cleaning-Phosphatizing. Job-adjusted metal cleaners for all metals, but particularly aluminum and steel. Interlox Process includes phosphate coating to prevent corrosion and anchor paint more securely. Northwest Chemical Co., 9310 Roselawn, Detroit 4, Mich.

For more data, circle 84 on colored card.

Oakite Rustripper removes rust and heat scale in same operation that removes oil. It's fast, effective and safe. Oakite Products, Inc., 20 Rector St., New York 6, N.Y.

For more data, circle 85 on colored card.

Write for Information & Literature.

Finishes That Last are included in the line of lacquers, synthetic enamels and vinyls offered by Stanley Chemical Co., Dept. D, 1338 Berlin St., East Berlin, Conn. A free folder tells about low cost industrial bake finishes.

For more data, circle 86 on colored card.

Gold, Silver, Metallics in all colors—bright, smooth, beautiful and enduring; air dry or bake; for use on metal, plastics or wood; ready mixed or supplied as separate liquid and powders. Illinois Bronze Powder Co., Inc., 2023 S. Clark St., Chicago 16, Ill.

For more data, circle 87 on colored card.

Weather-proof Finish. The Kadmoid finish, for example, is used on tire rims which are often stored and always used outside, exposed to all kinds of weather. An Akron company proudly calls it their Bond-a-Coat finish. Universal Paint & Varnish, Inc., Bedford, Ohio.

For more data, circle 88 on colored card.

Thermo-setting Acrylic Enamel. It's new Duracron enamel well adapted to the finishing of refrigerators, home laundry equipment ranges and air-conditioning units. Is tough, mar-resistant and durable, making it applicable to other products on which it is desirable to improve present baking enamels. Has superior adhesion either to bare metal or to primer. A product of Pittsburgh Plate Glass Co., Industrial Sales Division, Pittsburgh 22.

For more data, circle 89 on colored card.

Clepco Quartz Paint Ovens are based on the use of special Clepco Quartz Heaters designed to emit that part of the heat spectrum that is most readily absorbed by paints. The Cleveland Process Co., 1965 E. 57th St., Cleveland 3, Ohio.

For more data, circle 90 on colored card.

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R. P. Paint Arrestors increase paint spray booth efficiency, save time, floor space and maintenance costs. Inexpensive replaceable pads arrest the paint overspray which can be removed and replaced with little disruption of regular production. Research Products Corp., Dept. 34, Madison 10, Wisc.
For more data, circle 91 on colored card.

Custom Finishes, developed to include the latest materials formulated to give added protection and sparkling attractiveness, are offered by Randolph Products Co., Carlstadt, N. J.
For more data, circle 92 on colored card.

Electric Knife Heater for heating burn-in knives used for patch and repair finishing; with or without pilot light. Approved by CSA Testing Labs. Dependable for fast, long service. The Op-Al Electric & Mfg. Co., 3135 Martindale Ave., Indianapolis 5, Ind.
For more data, circle 93 on colored card.

Overhead Cable Conveyers in the Buschman line include packaged stock conveyors especially adapted for use in production painting, finishing and cleaning operations. Bulletin No. 41 tells more about them, including Bush-Lock trolleys, compact drive units, pre-engineered designs, etc. The E. W. Buschman Co., 4438 Clifton Ave., Cincinnati 32, Ohio.
For more data, circle 94 on colored card.

Dual-Fuel Burners. A sealed-in excess air burner for rich or lean operation on gas or light oil, with flame safety. A free bulletin reveals engineering data and other facts. The North American Mfg. Co., 4455 E. 71st St., Cleveland 5, Ohio.
For more data, circle 95 on colored card.

Spray Engineering Service and assistance (in addition to free classes in spray painting) are offered on a nation-wide basis to users of spray equipment—to keep production going at top speed and on a fine quality basis—by Binks Mfg. Co., 3116 Carroll Ave., Chicago 12, Ill.
For more data, circle 96 on colored card.

Zinoxide industrial primer has highly superior corrosion inhibiting properties for the protection of sheet steel, forgings and castings. Durability and severe weather tests reveal its remarkable qualities. Lowe Brothers, 424 E. Third St., Dayton 2, Ohio.
For more data, circle 97 on colored card.

Dipping Enamels (and for spraying too) that make extra tough and durable coatings to meet the most severe requirements, are among the many products featured by The O'Brien Corp., South Bend 21, Indiana.
For more data, circle 98 on colored card.

Air Dry Enamels in many colors and degrees of gloss, with wonderful adhesion, toughness and durability, are offered by Thompson & Co., 1025 Allegheny Ave., Oakmont, Penna.
For more data, circle 99 on colored card.

"Phosteem", the new process for cleaning and phosphating metal surfaces for painting is introduced by Neilson Chemical Co., 6562 Benson St., Detroit 7, Mich. It is a low-cost production method for cleaning and phosphating cabinets, trucks, trailers, busses, air conditioners, farm implements, caskets and large bulky equipment. Phosteem provides top corrosion resistance and assures paint durability. Phosteem Bulletin 55-137 gives the facts.
For more data, circle 100 on colored card.

Hard, Glossy, Bake Finishes made from new Isophthalic-based resins. They resist alkali, mineral spirits and water. The Isophthalic resin (a raw material used to make these highly resistant, durable bake finishes) is a product of Oronite Chemical Co., 200 Bush St., San Francisco 20, Calif.

For more data, circle 101 on colored card.

Built-in Conveyorized Machines for metal cleaning and other processing operations, are offered by The Alvey-Ferguson Co., 727 Disney St., Cincinnati 9, Ohio. New free A-F brochures explain and illustrate additional facts.

For more data, circle 102 on colored card.

Fume-Resistant Enamels—meaning resistant to fumes of acids, alkalis, sulphur, phenol, ammonia, etc.—are included in the line of enamels made and sold by A. C. Buschman & Co., 410 Frelinghuysen Ave., Newark 5, N. J.

For more data, circle 103 on colored card.

Bronzing Lacquer (clear) mixes with gold bronze powder to make a durable, bright, non-tarnishing finish for metals, woods, plastics. Has excellent adhesion; will not jell. Atlas Coatings Corp., 5-35 47th Ave., Long Island City 1, N. Y.

For more data, circle 104 on colored card.

Fast Drying Duracote has durability of a regular synthetic enamel. Ideal where use does not allow normal time for air drying or baking. Dust-free in less than twenty minutes, tape time less than thirty minutes. Your present color can be matched. Tousey Varnish Co., 520 W. 25th St., Chicago, Ill.

For more data, circle 105 on colored card.

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• LACQUERS • GLAZES
• SEALERS • PIGMENTED WIPING STAINS
• FILLERS • TONERS • NGR STAINS
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P. O. BOX 631 — YOCCOA, GEORGIA

Finishing Problems of any character solved by Reliance Varnish Co., Louisville 9, Kentucky, manufacturers of wood and metal finishes. More than 37 years of experience are available to help in finding ways of obtaining better results. Consultation without obligation.

For more data, circle 106 on colored card.

Roller Coating flat sheets or coil stock, panels or tops, metal or wood, prime coat and/or finish coats, by fast machines that lay on a smooth, uniform thickness coating—this can be accomplished on machines designed and built by Gasway Corp., 6463 N. Ravenswood Ave., Chicago 26, Illinois.

For more data, circle 107 on colored card.

Gold Dip Lacquers made with Eastman Half-Second Butyrate as the film former have a long pot life. They may be left in the dipping tank at closing time and used again without gelling. Ask your lacquer supplier about Half-Second Butyrate in lacquer formulations or write the Eastman Chemical Products, Inc., Kingsport, Tennessee.

For more data, circle 108 on colored card.

Flowcoat Top Coats. Ultraflo enamels have been developed to produce durable and attractive mirror-like finishes when applied, by the modern conveyorized flow coating process. Bulletin IF tells more about these new finishes. Interchemical Corp., Finishes Div'n., P. O. Box 659, Newark 1, N. J.

For more data, circle 109 on colored card.

Automatic Spraying Machines for painting or coating parts, products or subassemblies of any shape or size, doing the work rapidly, uniformly and with a minimum of overspray, are now available. The machines do not get tired or indifferent or careless. Schweitzer Equipment Co., 364 Ridge Road, Cleveland 9, Ohio.

For more data, circle 110 on colored card.

Prevents Rusting of "in-process" steel parts in preparation of metals for painting with Pre-Fos. Wyandotte Pre-Fos simplifies processing by cleaning and phosphating in a single operation. Wyandotte Chemicals Corp., Wyandotte, Mich.

For more data, circle 111 on colored card.

Cleaning and Drying Machines, batch-type and conveyorized, including components for complete finishing systems. Industrial Systems Co., Matawan, N. J.

For more data, circle 112 on colored card.

Furniture Lacquers, Enamels. For wood, metal or plastic surfaces. A complete line of high quality finishes. Lilly Varnish Co., 666 S. California St., Indianapolis 7, Indiana.

For more data, circle 113 on colored card.

driQuick Infra-Red Oven Sections are easy to assemble into panels or ovens—any size or shape. For baking, quick drying, heating, degreasing, metal prep pre-heating. Low initial cost—quickly pay for themselves in savings in time, labor and space, improved products. Information from Dry Clime Lamp Corp., Greensburg, Indiana.

For more data, circle 114 on colored card.

Electrostatic Spray Painting is adaptable to a variety of product painting jobs in small, medium and large size factories. It's automatic and it gives a uniform thickness coating at great savings in material and labor. Ransburg Electro-Coating Corp., 1234 Barth Ave., Indianapolis 7, Ind.

For more data, circle 115 on colored card.

Wire Enamels with exceptional flexibility and remarkable insulating properties. Can withstand bending the wire around its own diameter. Gives copper wire an unbroken insulating film and resists harmful effects of heat and many chemicals. "Lecton Acrylic Resin" wire enamel can be engineered to do a specific job, such as resisting abrasion, moisture, heat, oils, refrigerants and solvents. E. I. duPont deNemours & Co., Inc., Finishes Divn., Wilmington 98, Dela.

For more data, circle 116 on colored card.

Pump from Paint Drum to Spray booths through a paint circulating system (small or large). Saves transferring, spilling, wasting and possibly contaminating the paint. Covers for drums have stirring and pump equipment. Catalog No. 452 gives details and illustrations. Gray Co., Inc., 73 Graco Square, Minneapolis 13, Minnesota.

For more data, circle 117 on colored card.

PEARL ESSENCE

"Astralucine Brand"

Produces a high luster on a variety of finishes

Write for your free copy of our informative Technical Bulletin "Pearl Essence Finishes" —what they are and how to use them.

Argenta Products Co.

EASTPORT, MAINE

"GRIPALLOY"

. . . Attractive satin sheen primer in black and colors . . .
. . . Amazing tight adhesion to 25 different metals as reported by a large electrical manufacturer . . .
. . . Excellent resistance to Salt Spray, Gasoline and Solvents.

TENAX, NEWARK 5, N. J.
Lacquers—Enamels
Synthetics—Varnishes

Metal Finishes to meet the most exacting specifications. Uniform quality, laboratory controlled to retain color, gloss, beauty. Adhesion-hardness and durability unsurpassed. Spray or dip. Inquiries invited. Gilbert Spruance Co., Philadelphia 34, Pa.

For more data, circle 118 on colored card.

Aluminum Pigments for making a variety of high quality aluminum paints and coatings. Beauty and durability characteristics. (Alcoa does not make paints.) Aluminum Co. of America, 1732-B Alcoa Bldg., Pittsburgh 19, Penna.

For more data, circle 119 on colored card.

Wyandotte Spray—Altrex, a mild, safe cleaner, with heavy-duty action, especially developed for spray-washing aluminum; cleans most other metals, too. Easily controlled, works well in all kinds of water; cleans without foaming. Get details from Wyandotte Chemicals Corp., Wyandotte, Michigan.

For more data, circle 120 on colored card.

Lighting Fixture Finishes; lacquers and synthetics, air dry and bake, transparent and enamels; excellent adhesion, marproofness and durability. G. J. Nikolas & Co., 2850 Washington Blvd., Bellwood, Illinois.

For more data, circle 121 on colored card.

Screen Process Catalog. Everything used in connection with screen process work—materials, supplies, tools, equipment—and more is listed, illustrated and described in a new 120-page book distributed by Advance Process Supply Co., Inc., 1442 W. Kinzie St., Chicago 22, Ill. An alphabetical index of contents appears on the last page.

For more data, circle 122 on colored card.

Burn-in- Tools for making quick and skillful repairs to nicked, dented or scratched finishes. The Op-Al Electric & Mfg. Co., 3135 Martindale Ave., Indianapolis 5, Ind.

For more data, circle 123 on colored card.

Blond and Near Blond Finishes—everything in materials for light tones in beautiful, enduring wood production finishes—by Dayco. James B. Day & Co., 1872 Clybourn Ave., Chicago 14, Ill.

For more data, circle 124 on colored card.

Paint & Mastic Spray. A 32-page catalog featuring automatic and air-powered paint and mastic spray units and accessories is announced by Gray Co., Inc., 1039 Sibley St., N.E., Minneapolis 13.

For more data, circle 125 on colored card.

IDEAL TACK RAGS
FOR A
PERFECT FINISH
Bulk or Bagged
IDEAL CHEMICAL COMPANY
1499 Dean Drive,
South Euclid 21, Ohio

TOMORROW'S Products Tested TODAY

A service to aid industry in producing longer-lasting and better-looking products. Quick predetermination of durability and permanency by actual exposure test in South Florida. Write us today for full information.

SOUTH FLORIDA TEST SERVICE
EST. 1931
4201 N. W. 7th St. Miami 34, Fla.

Free Bulletins Offered

Infrared Pan-L-Heat Ovens. Here are described and illustrated, in a 16-page book 8½x11-in., the use of infrared heater panels in numerous conveyorized oven setups, for baking coats of paint, enamel, etc. Jensen Specialties, Inc., 9352 Freeland, Detroit 28, Mich.

For more data, circle 126 on colored card.

Silicone Book Free. The new 1957 Reference Guide to Dow Corning Silicones has just been published. Almost 150 commercially available silicone products are described in this year's catalog, including several which were developed within this last year.

Products are grouped by usage (water-repellents, dielectrics, release agents, etc.), enabling engineers to locate a material by what it does as well as what it is. Dow Corning Corp., Midland, Mich.

For more data, circle 127 on colored card.

Bonderite Story. A 12-page bulletin reveals what the extra values are in Bonderite—and how to use them to help sell your product. Parker Rust Proof Co., 2176 E. Milwaukee, Detroit 11, Mich.

For more data, circle 128 on colored card.

Roto Wash Spray Booths are described and illustrated in a 12-page bulletin No. 4938-B, offered by Newcomb-Detroit Co., 5753 Russell St., Detroit 11, Mich.

For more data, circle 129 on colored card.

Why Hot Spray. This is the title of a 16-page Question and Answer booklet prepared and offered by The Spee-Flo Co., 720 Polk Ave., Houston 2, Texas.

For more data, circle 130 on colored card.

Remove Paint and Varnish. A 4-page, illustrated folder contains instructions on how to remove paint, varnish, enamel, lacquer and shellac. The X-Cell-All Remover Division of National Chemical & Mfg. Co., 3617 S. May St., Chicago 9, Ill.

For more data, circle 131 on colored card.

Guided Pallet Conveyor. How to save time, money and manpower through low-cost mechanized conveyance of materials often classified as "non-conveyorable" is the subject of a new 28-page brochure offered by The Rapids-Standard Co., Inc., 342 Rapistan Bldg., Grand Rapids 2, Michigan.

For more data, circle 132 on colored card.

Phosphating Metal. A detailed phosphating folder, covering the entire Turcoat line of phosphating and metal protective coating materials has been issued by Turco Products, Inc., 6135 S. Central Ave., Los Angeles 1, Calif.

For more data, circle 133 on colored card.

Extension Spray Guns. Eclipse Products Finishing Folder describes and pictures many applications of Eclipse hand and extension guns in action. Where a spray booth is not practical, Eclipse low pressure permits top speed painting. Eclipse Air Brush Co., 390 Park Ave., Newark, New Jersey.

For more data, circle 134 on colored card.

Barrel-Finishing. A 6-page, gatefolded, 11 by 8½-in. brochure conducts the reader on a guided pictorial tour of what is said to be the world's newest, largest and most modern precision barrel-finishing laboratory. Here sample parts are sent to be processed to specifications. A picture-caption sequence carries the reader through each step from the time a part arrives until it is returned to the manufacturer with a detailed procedure for finishing in the tumbling barrel. The new laboratory also formulates compounds for special processing needs, tests chips and other media in practical use, designs, develops and tests barrels and other new equipment. Lord Chemical Corp., 2068 S. Queen St., York, Pa.

Lacquers for Plastics. A 4-page folder reveals the properties of eight Rez-N-Lac "special assignment" lacquers for coating and decorating plastics, including top and bottom coatings for use in the metallizing of polystyrene. Schwartz Chemical Co., Inc., 326 W. 70th St., New York 23,

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Filtration Bulletin. A new 8-page brochure illustrates 6 major filter types for industrial applications. Filters offered include disposable media gravity type, combination gravity and magnetic, straight magnetic, vacuum, pressure and screen-type settling filters. Complete descriptions of filter operations are given as well as applications, degree of filtration and flow rate capacities.

Write for General Bulletin to George L. Guymon, Vice President & Director of Sales, Industrial Filtration Co., Dept. GB-318, Lebanon, Indiana.

M & W Expands to Produce More Plextone

Construction of a new building to be used exclusively for the manufacture of its multicolored paint product, Plextone, has been begun by the Plextone Corp. of America, founded by Maas & Waldstein Co., world's largest manufacturer of multicolored paints.

The project was announced by Dr. G. Klinkenstein, Plextone Corp. of America President, who stated that the move was part of a nationwide program of expansion to provide broader, more thorough service and to meet the growing industrial demand for multicolors. Describing this trend, Dr. Klinkenstein stated, "Multicolors are undergoing a stage of enormous growth, as their dramatic and appealing color effects and superior protective qualities become more widely recognized.

"We find increasing use of Plextone praticularly among manufacturers of juvenile furniture, kitchen cabinets, television receivers, office furniture and partitions, and machine and power tools. However, at this point we can see no end to the areas of use, as Plextone performs equally as well on woods and metals.

"No special spraying equipment is needed to apply two, three, or more colors at once. Properly applied over suitably primed surfaces, only one coat is required, yet this one coat is five times thicker than ordinary paint and offers tremendous resistance to dirt, grease and stains. It also resists chipping and scratching to the extent that, if necessary, you can scrub it, scour it, even sand it!"

The expansion program began with the enlargement of the company's facility in Los Angeles, and will be completed with new plans for its Plextone facility in Chicago.

MORSE
VERTICAL DRUM TRUCK
ROCK-A-DRUM

Picks up 55-gal. drums, rolls them over for side draining. Becomes a rugged stand on 3-in. wheels.

Morse Mfg. Co., Inc. 763 W. Manlius Street E. Syracuse, New York

Random Comment on the Industrial Scene

(Continued from page 6)

cooling, a heavy duty heating element, and a cast aluminum body. All moving parts are protected by enameled steel screening. Ullman Products Corp., 15 River St., Norwalk, Conn.

* * *

TV Cabinet in Vinyl Finish. Two new 14-inch portable television receivers in cabinets of vinyl finish have just been added to the Spring line of Westinghouse Electric Corporation.

The vinyl finish is bonded to metal.

The vinyl finish is bonded to the light metal cabinet. It is recognized for its superior resistance to acids, alkalies, salt water, alcohol, household chemicals, corrosive industrial liquids, and atmospheres. The cabinets, which are heat resistant, have a hard shell resistance to abrasion, scratches, and rough uses.

Designed by Raymond Lowey & Associates, the two portables come in soft attractive colors—Cerulean Blue and Salt & Pepper.

NEW Wrinkle, INC.
"THE ONE COAT FINISH"
If you are not interested in a Better Wrinkle Finish, Don't Write Us for a Free Sample.
Union Chemical Corp. 410 Frelinghuysen Ave. Newark, N. J.

President of Federal Varnish

A. R. Wolff, President of Enterprise Paint Mfg. Co., of Chicago, announces the appointment of Glenn Doerr as President of its Federal Varnish Division.

Mr. Doerr's promotion from the vice-presidency marks his 12th year with Federal. His interest in the research and exploitation of synthetic resins for the varnish and paint field has sparked many of the developments of Federal Varnish, long a leader in its industry.

Airless Spray Painting Classes Offered Free by Bede Products

Regularly scheduled training classes in the proper operation and maintenance of Bede Airless Spray Painting equipment are announced by President Eric Nord of the Bede Products Corp., Amherst, Ohio.

A new training and technical services building has been erected and is being used as the training center. Classes are conducted over a 4-day period during the second week of each month. Forthcoming classes are scheduled as follows: May 14-17; June 11-14; August 13-16.

Subjects covered during each class are:

A) Theory of airless process;

B) Equipment study which includes actual equipment disassembly and reassembly;

C) Equipment operation procedure;

D) Preventative maintenance and repair;

E) General study of airless finish formulations;

F) Airless finishing techniques.

Classes are open to all interested persons including present airless equipment users, chemists or paint formulators, equipment manufacturers and others. There is no tuition charge for attending. For application blanks or additional information regarding the Bede Airless Training School, write to Bede Products Corp., Amherst, Ohio, attention Mr. R. T. Schafer.

CLASSIFIED ADVERTISING

The rate on ads appearing in this department is $1.00 per line of 6-pt. light face type, per insertion. Minimum charge, $5.00. Ads set in 8-pt. extra bold face type cost $2.00 per line, per insertion.

CHEMIST WANTED.

Experienced in industrial lacquers. Also one with leather experience. Newark, N. J. area. Give full details. Address IF-489, care Industrial Finishing.

EXCELLENT SIDE-LINE.

Good repeat item for man with finishing experience. Protected accounts; good commission. Write in confidence, giving territory covered. Address IF-460, care Industrial Finishing.

Well Known Manufacturer of

BRONZE POWDERS

(Gold, Aluminum, etc.)

wants to contact nationwide sales organization calling on industrial establishments for the sale of their products on a commission basis. Address IF-490, care Industrial Finishing.

DISTRIBUTORS WANTED.

We are manufacturers of a well-established Hot Spray Unit now in use by leading manufacturers all over the world. Good, selected territories are open for distributors or manufacturers' representatives calling on manufacturers of all kinds of products of industry which are production coated with lacquer or synthetics. For complete details address IF-492, care Industrial Finishing.

CHEMIST WANTED.

Progressive industrial paint manufacturer located in Connecticut, desires man with formulating experience in alkyd urea systems, lacquers and epoxies, etc. Salary commensurate with experience and initiative. Address IF-493, care Industrial Finishing.

FORMULATOR WANTED.

Experienced formulator for development of industrial enamels. Technical background and ability to administer laboratory functions desirable, but not essential. This is an excellent opportunity to become associated with an aggressive, growing organization. Salary open. Give full qualifications, education and employment record. All replies confidential. Send to H. A. Chloupek, LILLY VARNISH CO., 666 South California St., Indianapolis 7, Ind.

SALESMAN—INDUSTRIAL FINISHES

Well established and expanding manufacturer in the Newark area will consider an experienced man with proven record of achievement selling industrial finishes. Our proposition and an exceptional opportunity for security and high earnings allow us to insist on highest qualifications. Answer in detail. Replies confidential. Address IF-462, care Industrial Finishing.

OPENING—NEW PRODUCT SALES DEVELOPMENT.

We are a progressive, well-established company looking for an experienced industrial finish chemist or salesman to handle the promotion and service on new products. This is a real opportunity for the man who can manage and expand the sales on new products working in cooperation with our Sales and Research Departments. Write Sales Manager, RAFFI AND SWANSON, INC., Wilmington, Mass.

POSITION WANTED.

Open for position as first-class finisher. Have had experience selling and servicing. Have good following as salesman. Address IF-488, care Industrial Finishing.

TECHNICAL SERVICE.

The Glidden Co.—Industrial Finishes
Cleveland, Ohio

Opportunity for man to contribute experience required to obtain and service industrial customers. Give advice and consult with customers and salesmen on all industrial paint problems. Survey customers' facilities and needs and provide sales engineering service. Define the technical aspects of a problem and provide instruction to accounts to obtain efficient methods and techniques. Salary commensurate with experience. Please forward complete resume to R. L. Malcolm, 11001 Madison Avenue.

INDUSTRIAL FINISHES SALESMEN.

Established progressive Eastern lacquer and enamel producer seeks ambitious experienced salesmen to take over established accounts and expand sales in New Jersey and Pennsylvania territories. Excellent opportunity for men with desire to go ahead. Our men know of this advertisement. Write in detail, Address IF-491, care Industrial Finishing.

SALESMAN WANTED.

Pratt & Lambert wants experienced industrial salesman with following, for Chicago and Philadelphia areas. Reply PRATT & LAMBERT, INC., Industrial Division, Buffalo 7, New York.

SALES ENGINEER.

Experience required. Large and small industrial accounts. Territory established. Full training program. Degreasers, phosphatizing washers, alkaline washers, ultrasonic metal cleaning equipment and solvents. Salary plus incentive. CIRCO EQUIPMENT COMPANY, 51 Terminal Avenue, Rahway, New Jersey.

SAVE ON THINNER COSTS.

Do you use lacquer thinner in drum quantity? If located in New England, Metro. N. Y. or New Jersey, send a card to "Mr. Thinner", Box 384, Essex, Conn. A representative will call to quote you price for your particular requirement.

WANTED TO BUY.

Used 36-in. one-side rollacoater. ANTHONY & CO., Escanaba, Michigan.

DIRTY THINNERS AND SOLVENTS WANTED.

Send samples and letter giving approximate contents. GET CASH FOR SCRAP. THE JOHANN COMPANY, 13900 Grant St., Dolton, Illinois. Phone Dolton 4850.

FORD CUPS

THE VOL-U-METER COMPANY
Buffalo 16, N. Y.

PAINT STRAINERS

For straining lacquers, enamels, paints. Made of heavy paper with cloth inserts in different meshes. 6-in. diameter conical shape. Write for catalog and samples. GERSON CO., Box 175, Mattapan 26, Mass.

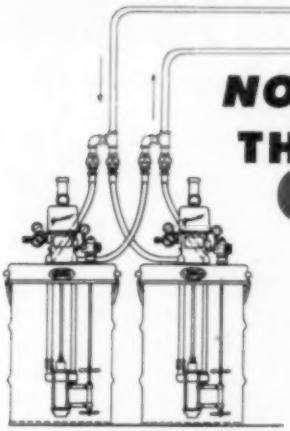
BARGAINS IN FINISHING EQUIPMENT

Binks Automatic Spray Unit w/water wash, conveyor and oven.
DeVilbiss, Paasche and Binks dry Spray Booths, Pressure and Mixing Tanks.
Barrett Centrifugal Enameler for Filwhirl or Dipspin Methods.
Bede Paint Heaters, Model U, X.P. type, complete and ready for use.
Stevens Model B, Phosphatizing Machine, Automatic w/conveyor, etc.

Send list of what you want to buy or sell to

GENERAL EQUIPMENT & TRADING CO. • 2629 W. Grand Avenue, Chicago 12, Illinois

ATTENTION: SMALL FINISHING DEPTS.



NOW! ENJOY ALL THE BENEFITS OF A GRACO PAINT CIRCULATING SYSTEM

SAVE LABOR — SAVE TIME — STOP WASTE

NOW, AT LOW COST, the new Graco Powerflo pump allows you to enjoy the advantages of a paint circulating system . . . the same type used by large manufacturers!

In the "two-pumps-per-color" system, one Powerflo pump supplies the system "direct-from-drum" while the second pump keeps a standby drum thoroughly mixed and agitated for instant changeover. These air-powered Powerflo pumps have a broad range of capacities—operate in 5 gal. pails or 55 gal. drums. And you supply multiple spray guns uniformly, economically — even at some distance.

See this Graco System!

SOME OF THE BENEFITS YOU WILL ENJOY:

SAVE PAINT. No loss in transfer, since you pump "direct-from-drum."

CONSTANT CONTROL. Perfectly mixed paint at uniform pressure at all times.

NO "POTS" TO CLEAN. Eliminate pressure pots, extra lines, etc.

AID HOUSEKEEPING. No spillage! It's easy to keep a "clean house."

See it in Sweet's Plant Engineering File!

GRACO

GRAY COMPANY, INC.
43 Graco Square
Minneapolis 13, Minn.

"DIRECT-FROM-DRUM" PUMPS

Factory Branches and Laboratories: New York, Philadelphia, Detroit, Chicago, Atlanta, Houston, San Francisco

Write FOR NEW GRACO POWERFLO CATALOG!

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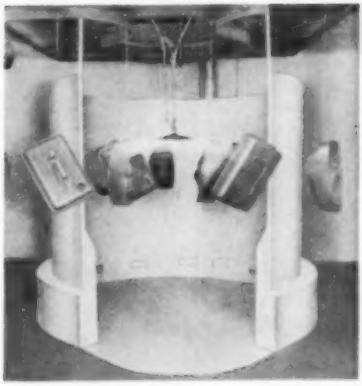
Invitation

to improve production

Scientific Electric cordially invites you to bring your products for a FREE demonstration of Ionic Electrostatic Spray Equipment.

R.S.V.P.

*Patented



Check These Features

- ★ No Rentals
- ★ Minimum Paint Consumption
- ★ Higher Product Quality
- ★ Minimum Maintenance
- ★ Requires Less Ventilation
- ★ No Royalties
- ★ Lower Capital Investment
- ★ Speeds Up Production
- ★ Requires Less Manpower
- ★ Cuts Operating Costs

Solve your finishing problems with an Ionic Electrostatic Spray Process. A choice of four processes are available.

★ Ionic Grid Process ★ Ionic Gun Process

★ Ionic Centrifugal Disc Process ★ Ionic Centrifugal Cone Process

PROOF BY TRIAL is the motto of *Scientific Electric*

Before installing any automatic spray equipment, we urge you to investigate the many advantages of Ionic Electrostatic Spray Equipment. Our laboratory at Garfield, New Jersey, is at your disposal. Why not arrange for a FREE demonstration today? Ship your samples and coating materials to us prepaid, with all pertinent information. We will then conduct tests and issue a detailed laboratory report on the advantages which result from the use of Ionic Electrostatic Spray Equipment.

SCIENTIFIC ELECTRIC

105-119 MONROE ST., GARFIELD, N. J. | PHONE: PRESCOTT 7-0507

Manufacturers of: Induction and Dielectric Heaters—Ultrasonic Generators—Spot Welders—Power Supplies

How to add the beauty of PEARL *to your finish with* NACROMER®

It's easy! Simply by adding a small amount of Nacromer to your regular coating material*, you add a beautiful pearl-like lustre to your finish. The range of effects that can be achieved by also adding transparent pigments or dyes is amazing. For example, it is being used to get beautiful gun metal, gold and silver finishes. It transforms the character of standard colors to achieve unique effects. Nacromer will make a finish that will enhance the beauty of your product . . . increase its sales-appeal!

From a cost viewpoint, Nacromer is practical. You use your present method of application — brush, spray, or dip — without additional labor or equipment required. And, because only a small quantity of Nacromer is necessary, and, the cost of the Nacromer is so low, the added cost is negligible.

Nacromer is versatile, too! You can use Nacromer on practically any material — wood, metal, plastic, leather, and paper are just a few. Nacromer is permanent and safe!

If eye-appeal plays an important role in the sale of your product, you can benefit from the distinctive, different kind of pearl-like finish Nacromer gives. A demonstration sample will show you the difference Nacromer makes on the same kind of material you use — just mail the coupon to get your sample.

**Nacromer is not suitable for use in pigmented enamels, high temperature bake-type synthetic resins containing formaldehyde, or paints. It is suitable for use over these coatings in a clear enamel or lacquer.*

the Mearl corporation

"World's Largest Producers of Pearl Essence"

153 Waverly Place • New York 14, N. Y.

Please send a demonstration sample of a Nacromer finish on

☐ wood ☐ metal ☐ plastic ☐ other

Name..... Title.....

Company.....

Address.....

City..... State.....